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## WORLD TIRE STANDARDIZATION NEEDED.

THE struggle in Europe has emphasized the desirability of tire standardization by European and American manufacturers. This change seems certain to come after the war, but might better be put into effect as speedily as practicable to simplify war equipment and replacement and eliminate confusion and delay. American, French and British sizes now form three distinctive series. American tires are usually made in inch sizes, European tires in millimeter sizes, so that manufacturers engaged in both foreign and domestic business must maintain two or more sets of molding equipment. A British rim of 650 x 65 millimeters, however, is not the same as a French rim similarly marked, and neither has the same measurements as the American equivalent. Like the Palmer rim and wheel, now adopted as standard for American as well as British airplanes, a limited number of standard tire sizes would make immediate replacements possible wherever necessary, back of any allied battlefront.

## THE SEASON'S GREETINGS.

TO our friends at home and abroad: a happy and a prosperous New Year.

To our brave boys in service overseas: a triumphant return as soon as may be.

To our fellow workers in America: the will and the power to provide amply the essentials for those dependent upon us.

May the product of the factory and the soil; the corporate earnings and the individual savings; the bravery, devotion and sacrifices of the whole American people tip the balance of justice toward the side of right and humanity in this great fight for freedom, that an enduring peace may be the world's inheritance in the years to come.

## THE RUBBER ASSOCIATION HONORED.

THE War Trade Board of the United States Government, in requesting The Rubber Association of America, Inc., to act as consignee of importations of crude rubber from foreign countries, renders a signal service to the whole rubber trade. It is also a notable tribute not only to the effective work of the association, but specifically to the wise and eminently fair work of the special "Committee on Rubber and Kindred Products." Messrs. Wilson, Hotchkiss, Work, Spadone, Bruyn, Hodgman, Kelly, Huxley and Vorhis are to be congratulated on the appreciation of their efforts as shown by this action of the State Department.

## NOT CURTAILMENT BUT READJUSTMENT.

MANUFACTURERS of rubber goods do not view with alarm the proposed creation of the Bureau of Manufacturing Resources under the War Industries Board to bring about a reduction in unnecessary manufactures that the production of war essentials may be correspondingly increased. This infers not a curtailment but a readjustment of industry such as the experience of England, France and Italy has shown to be necessary. A certain amount of readjustment has been anticipated as inevitable, and the rubber industry will bear its share gladly in the knowledge that every plant, to whatever extent affected, will be converted in some way into a profitable war industry to compensate for the curtailment of normal output.

## HIGHER TARIFFS AFTER THE WAR.

AMERICAN business shares the opinion expressed in the résumé of war influences on tariff policies, recently published by the Department of Commerce, to the effect that a world struggle in which economic factors count for so much is certain to result in radical tariff changes by some of the most important countries. New treaty relations between the two groups of belligerents,

as well as between them and neutral countries, will inevitably be reflected in commerce. In the United States, while the outcome may be influenced one way or the other by preconceived ideas on the tariff and by political traditions, every indication points to a readier acceptance in the future of the principles of a protective tariff, provided excessive duties be not imposed. War is teaching the necessity of national sufficiency and the fact that the strongest and most independent country is that which relies least upon outside sources for essential supplies. While the interests of the home consumer should never be disregarded, mere low prices are of minor importance in comparison with the organization and maintenance of the productive forces of society.

Considering the matter with reference to American rubber manufacture, it is well to keep in mind the fact that this industry depends chiefly upon home consumption, and so requires adequate tariff protection. Of the total product for the fiscal year 1917, estimated at $600,000,000, goods to the value of only $38,302,078, or about 6 per cent, were exported, the balance of 94 per cent being marketed at home.

## TIRE STOCKS AMONG THE GREAT SECURITIES OF THE FUTURE.

FINANCIAL observers and writers are beginning to admit that railroad stocks are on the wane, that the day of "gilt edge" investments in railways has passed. Persons who have owned and held them for years are gradually selling out and investing in industrials, such as automobile, airplane, rubber tire, oil, copper, and steel, which appear to be the great money-earning securities of the future.

Several causes have brought about the change. The high cost of labor and expensive terminal facilities have been a considerable factor. The passenger automobile has taken from the railroads much of their most profitable high-grade traffic, and at the end of the war the airplane will claim still more. For short hauls up to fifty miles the motor truck has become the preferred carrier, and it daily wins new laurels as a long-distance carrier. The railroads are not going out of business, however. They will always be needed for the long-distance transportation of passengers and commodities that it would be impracticable to handle in other ways; but hereafter they will be the servants, not the masters of industry. In the meantime industrials, with rubber a strong favorite, will have their day.

## THE FRENCH RUBBER INDUSTRY GROWS.

OF the valor of the French arms America knows much, but of her growing commercial strength less has been published. Despite propagandist rumors of impending military and economic collapse, France continues to fight, to produce huge quantities of munitions, and to enlarge her output of manufactured goods in a great variety of lines. Notwithstanding the drain of the war, both domestic and foreign trade show substantial gains. Not only did imports increase from 11,035,794,000 francs in 1915 to 15,159,412,000 francs in 1916, but exports advanced from 3,937,369,000 francs in 1915 to 5,115,690,000 francs in 1916. These figures were computed on the basis of the average 1915 prices and are therefore less than the actual totals.

In this surprisingly enlarged productivity the rubber industry participated conspicuously. Crude rubber imports increased from 13,298 tons, value 87,768,000 francs, in 1915 to 17,745 tons, value 117,120,000 francs, in 1916. Imports of manufactured rubber advanced from 2,560 tons, value 27,811,000 francs, in 1915 to 4,240 tons, value 59,907,000 francs, in 1916. Crude rubber exports increased from 2,335 tons, value 15,410,000 francs, in 1915 to 2,883 tons, value 19,030,000 francs, in 1916. Exports of manufactured rubber advanced from 4,974 tons, value 80,225,000 francs, in 1915 to 5,774 tons, value 93,657,000 francs, in 1916. The imports were chiefly from Great Britain, United States and Italy, the exports to Italy, Great Britain, Spain and Argentina, stated in the order of their value.

## GERMAN PLANS TO REGAIN FOREIGN TRADE.

THAT German manufacturers appreciate the difficulties ahead of them in breaking down prejudice against their goods in former foreign markets after the war is indicated by a writer in the "Wirtschaftszeitung der Zentralmächte." Several lines of insidious strategy are suggested, notably "commercial mimicry," by which is meant the removal from goods for export of every prominent indication of their nationality. By this ruse, and through neutral intermediaries, it is hoped to create a demand for German products in enemy countries until such time as prejudice dwindles and direct exportation of frankly German goods may safely be resumed. Neutral aid appears to be indispensable to the success of this scheme, and the number of neutral nations is becoming so small that such attempted deception is bound to become patent to the wide-awake consular agents of the United States and other allied countries in all the ports of the world.

PRESIDENT COLT, of the UNITED STATES RUBBER CO., makes the interesting assertion that "in all probability not more than 10 per cent of the tires sold by all the rubber companies are for the benefit of the class using the more expensive and so-called pleasure type of vehicle." That "individual owners and companies are operating not only their commercial cars but those of the touring car type to assist merchants and railroads in the transportation of merchandise throughout the entire country" is a further statement from the same expert source.

# What I Saw in the Philippines—VII.

*By the Editor of The India Rubber World.*

**The Hemp Planters of Davao—Statement by One of Their Number Regarding Castilloa—En Route for Malita—A Rough Night—Difficult Landing—At Headquarters in Malita—Viewing the Abaca Plantings—Hemp Stripping and Drying—On Horseback to Lais—Along the Beach with the Tide Coming In—Castilloa at Lais—Interesting Facts and Figures—Castilloa in Reforestation—Back to Zamboanga.**

I DO not think I mentioned it, but while in Manila, and, indeed, on my way down to Zamboanga, I became well acquainted with a husky alert hemp planter of Davao. He knew quite a lot about rubber, was willing to admit that *Hevea* was perhaps the most profitable, but held also that under certain conditions *Castilloa* could be grown profitably. This he said he could prove if I were willing to come to his part of Mindanao. I had long known of the band of some sixty Americans who had gone to the farther end of the great island and settled in and about the Gulf of Davao. They had a hard time at first, but after getting sizable plantations of abaca or hemp under way the tide had turned and some were quite prosperous.

TWO TYPES OF TAPPING.
The horizontal cuts proved the better.

To a degree they had also looked into rubber planting. Ceara had shown wonderful growth, *Castilloa* had done well, but while some *Hevea* had been planted I could learn but little about it. I therefore resolved to have what the Chinese term a "look see."

From Zamboanga to the Gulf of Davao is a water journey. One might go by land, but it would take a week or more and involves the penetration of uncharted wilderness, climbing high mountains, in fine, a trip that although safe enough would be extremely arduous.

I therefore went by water on the revenue cutter *Mindanao* and was fortunate enough to have my friend the hemp planter as fellow passenger.

The night trip was pretty fairly rough, not stormy, but a high wind, and the huge South Pacific rollers kept the little boat pitching and rolling every minute. At 3:30 the following morning we hove to off the long wharf that belonged to Plantation Malita. So threatening was the surf that the steamer could not touch at the pier, so we were loaded into a small boat to make as safe and graceful a landing as possible. Once by the side of the pier, the boat rose and sank a good ten feet and only skillful handling kept it from being smashed. However, at the right moment on the apex of a rise I grasped a friendly hand and stepped on the spray-drenched pier, the boat instantly dropping far below. It was easy if you happened to time your step just right; otherwise you might get hurt or drowned or something of an equally disagreeable nature.

STALK OF HEMP BEFORE STRIPPING.

The hemp man at once conducted me to his bungalow, a substantial home built on stilts, the whole constructed of native woods, ant and vermin proof and of exceeding comfort and convenience. After breakfast, when we were joined by half a dozen young white men, neighboring planters and constabulary officers, we went over the plantation.

The abaca or hemp I knew little about, nor

LOOKING DOWN ON THREE-YEAR-OLD CASTILLOA.

in all of my visits to tropical countries had I ever seen it. It is said that it is grown successfully only in the Philippines and perhaps that is why.

Looking at it from a distance and indeed close at hand I should have thought it an especially good banana plantation. The vigor-

EIGHT-YEAR-OLD CASTILLOA

ous plants had taken full possession of the land so that in walking between the rows we not only found no growth underfoot, but above a shade so dense that it was like twilight.

We visited the various plantings, saw the workmen selecting and felling the matured stalks, others stripping the fibre, and still others arranging the long skeins for drying. Of course, we examined the young coconut plantations with their Patani bean cover, looked over a few Ceara trees, and were finally ready to take up the *Castilloa* investigation.

First, however, we went to breakfast, the first of coffee and rolls not being counted a meal. Following it came a brief siesta

THE ORIGINAL PLANTATION HOUSE AT MALITA

and then the start. The plan had been to board the launch and go along the shore to Lais, the adjoining plantation where the *Castilloa* was to be seen. The sea, however, was steadily rising, and as it swept the length of the pier the boat could not be gotten near enough to embark. Horses and a trip along shore was therefore the alternative. My mount was a small, chunky, docile beast, who, once I was in the saddle, got down on his knees, possibly to pray, but probably to roll. . Prompt application of the quirt changed his plans and we started. The tide was coming in, and although we rode high up on the beach some of the wash boiled about the ponies' legs, and when they could they scuttled up into the brush. In time we came to a small river and the hemp man did not know just where the ford was. So I sat and watched him feel for it. Just as we had decided to strip and wade or swim a native came along and calmly walked across a short distance below the scene of our experiments. The water came barely to his waist, so perching on hands and knees on our saddles we got across without even wetting our feet.

After following the coast for another half mile we were at Lais and ready to see the rubber. We were welcomed by the plantation manager and a young American from another plantation who was waiting until the sea went down a bit so that he could load supplies on his banca.

The trip to view the rubber was of great interest. We followed jungle paths, up hill and down, across brooks big and little,

MANOBO RUBBER GATHERERS AND THEIR WOMEN

and through abaca plantings until we came to a shallow river. As I sat down to doff shoes and stockings the hemp man said:

"Are you game to let me carry you across?"

"Sure thing," said I, "if you can."

He could. Catching me around the legs he laid me on his shoulder, and wading the river climbed the steep bank safe and dry, and did not breathe any the quicker for the exertion. A few yards farther and we were in the *Castilloa* plantation.

To digress a moment, I have always believed that under certain conditions *Castilloa* could be made to pay. The fact that the

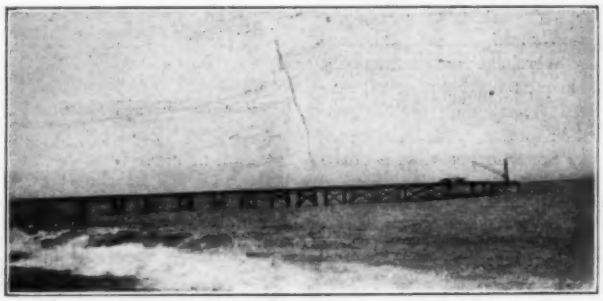
UNLOADING RICE

greater profitableness of *Hevea* had knocked it out for a while did not seem to warrant its abandonment always and everywhere. Here there was a plantation, a paying one, and the manner of its administration was simple and interesting.

The original planting comprised some 1,700 trees that are

now 10 years old. These had seeded abundantly, forming their own nurseries, and as a result the owner claimed that there were now some 70,000 trees varying in age from 6 months to 10 years. The mature trees had taken full possession of the ground, and no undergrowth but young *Castilloas* seemed able to live. The land, by the way, was a rich alluvial flat and could not easily have been better suited to the purpose.

The particular originality about the planting was in its handling. All of the tapping was done by natives without supervision, and they were paid 50 centavos (25 cents) a kilo. They used an adaptation of the farrier's knife, and made horizontal cuts only. As a rule one cut was made on each tree. No cups were used, the latex being allowed to coagulate in the wound. The day following, the coagulated rubber was stripped off and another cut made three fingers above the first. The trees were not badly scarred by this kind of tapping. The bark renewal was not perfectly smooth, but it was perfectly possible to tap when the bark had renewed itself after a year or two, and get a good flow of latex.



THE PIER AT MALITA.

The tappers brought in from 1 to 3 kilos of rubber a day, and the cost of the rubber in Manila was about 20 cents gold per pound. In the words of the planters, it was such a "simple stunt" that others had gone into it. An adjoining property had 100,000 *Castilloas* about a year old, while another had 3,000 four-year-olds, and still another 20,000 three-year-olds.

Just how far this sort of planting is practical I do not know. Certainly there is a possibility that as a reforesting proposition the *Castilloa* might be of value. The whole of the Philippine forest is dotted by patches of Cogon grass, worthless, indeed poisonous to the soil. These patches mean that at one time the forest was cleared and planted to rice by the natives; later it was abandoned, and the Cogon came in. If these patches could be planted up to *Castilloa* it would surely be profitable to a degree.

One thing in particular I wish to say about the Mindanao jungle; it is not cursed by the vast variety of winged and crawling pests that I have always encountered in tropical wilds elsewhere. There are mosquitoes, although I saw none; there are also inland leeches that are very troublesome, but as for the usual *rodadors, moyaquils, pinellelos, conchudos,* etc., I saw and felt none of these, and inquiry failed to disclose any knowledge of them. This, therefore, and I speak advisedly, makes the country very much of a tropical heaven.

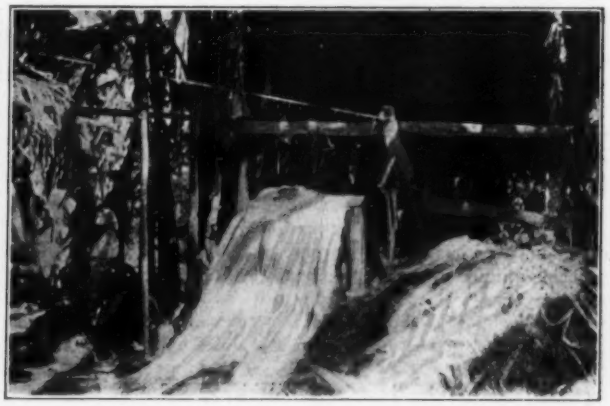
The rubber examined, we went back to the ranch house for rest and for supper, which was a good one. Indeed, in one respect it was unique. After the roast pork and potatoes and strong tea had been disposed of, there came a big luscious gooseberry pie. The "gooseberries" are curious fruits about the size of a pear, but are four-sided and ridged like a Brazil nut. They grow on a huge tree and, as I said before, in flavor they are real gooseberries. I believe that this fruit is to be found only in the Philippines; at least, I never saw it elsewhere, and it pleases me to think so. Also the tree fruit that passes for rhubarb is found in Mindanao, and is valued highly for sauces and pies. As the *Mindanao* could call for me at Lais as well as Malita, and as it would give me an hour more in the morning, I staid where I was for the night, the hemp man riding back along the beach by moonlight. By the way, so safe are the planters that they rarely carry arms and do not hesitate to go anywhere at any time.

The following morning, while we were viewing the hemp, the bellow of the *Mindanao's* whistle summoned us to the pier. Getting aboard consisted in jumping from the pier into a boat that was leaping and bucking like a lassoed broncho, and a little later scrambling up the ship's side with the help of a rope, and the accompaniment of barked shins. It was safely accomplished, however, and the captain said he was glad I was at Lais, as the pier at Malita had been pretty well knocked to pieces by the waves during the night.

Of the trip back to Zamboanga not much is to be said. It was comfortable enough, although the first 50 miles was through a very choppy sea. The weather was clear and delightful, however, and the varied panorama of mountain plains, river and island, all heavily forested, kept one's interest alive all day long and late into the night. And then before we knew it we were in Zamboanga preparing for the journey north.

*(To be continued.)*

STRIPPING HEMP FIBER.



HEMP FIBER AND WASTE.

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THE POLYGLOT RUBBER TRADE DIRECTORY contains valuable information that has been compiled expressly for the rubber trade.

# War News of the Rubber Industry.

**Sinews of War—Rubber and Automobile Business Essential Industries—The Enemy Trading List—A Labor Dictator May Come Next—Additions to the Export Embargo List—Imports of Crude Rubber and Allied Gums Under License—Overland Army Truck Freight Trains—Industrial Mobilization—The British Submarine Helmet—Rubber in the Sailor's Winter Uniform—German Waterproof Swimming Suit—New German Rubber Bomb—Cooperative Long-Distance Delivery—Waterproof Garments in Warfare—Thrift Stamps for Rubber Employes—Service and American Flags—Service Notes and Personals—The Rubber Trade Roll of Honor—Martyrs to the Cause of Liberty.**

### SINEWS OF WAR.

THE National Foreign Trade Council is a non-political, non-partisan organization of sixty merchants, manufacturers, bankers, railroad and steamship men representing all sections of the United States and collectively standing for the general interest of all elements engaged in foreign trade. James A. Farrell, president of the United States Steel Corporation, is chairman, and the rubber industry is represented by Colonel Samuel P. Colt, president of the United States Rubber Co.; M. A. Oudin, foreign manager, General Electric Co., and Maurice Coster, managing director, Westinghouse Electric Export Co., are also members.

The National Foreign Trade Council hits the nail squarely on the head in the statement that "practically all the money in the allied portions of the world, and most of that held by neutrals, in time, can be made available for our war emergencies if our production constantly provides a proper basis for foreign trade." This salient truth summarizes the purpose of the recommendations of this body submitted to the President and to Congress advocating the coordination of price fixing and taxation with the maintenance of foreign trade so as to stimulate production, insure uninterrupted supplies, maintain national credit and provide a steady source of war funds. The only really big thing in the world today, states this report, is to win the war, and in doing so the essentials, apart from securing the fighting men, are to produce and conserve. Only by careful and faithful application of sound economic principles can the enormous burden laid upon us be carried through successfully. The productive forces of the country must not be impaired, and "foreign trade provides the possibility of keeping the entire national energy at all times employed in profitable production by creating a foreign demand for products for which there would be no demand at home."

COLONEL SAMUEL P. COLT.

### RUBBER AND AUTOMOBILE BUSINESSES ESSENTIAL INDUSTRIES.

The proposed curtailment by the Government of the production of automobiles has naturally aroused much speculation as to the probable attitude of the authorities toward the use of automobiles and the consequent effect upon the tire and automobile accessory industries. The following reassuring statement by F. A. Seiberling, president of the Goodyear Tire and Rubber Co., Akron, Ohio, is therefore the more welcome at this time because of his close association with the men in Washington who are formulating America's plans for winning the war. Mr. Seiberling says:

Much has been said about stopping the automobiles. This is all nonsense. The Government is going to lay its heavy hand on the non-essential industries. But the rubber business and the automobile business are not in that class. They are essential industries.

Just because in England and France the use of automobiles had to be checked, it does not follow that we have parallel conditions here. You must remember that in England and France they are dealing, not with 29-cent gasoline, but with $1 and $1.25 gasoline, and that over there the man power is exhausted, almost to the last man. They have to get every man available, even from the essential industries, on the battlefront. They want the automobiles to run for Government purposes. When I was there in 1915, they were already "boohing" automobiles along the streets of London.

But we are not going to get to that point in this country. Here we have a tremendous area, and a great amount of transportation is necessary. The railroads have broken down and cannot carry it. The automobile fits in for the direct purpose of the war to a greater extent than we have yet discovered. The commercial end of the business will expand tremendously. More commercial cars will be made than we have ever dreamed of. The joy riders will be clipped off, but that does not mean that the man who takes his family out for a ride on a Sunday or holiday to get readjustment, probably for the tension of the week, will be criticised for this indulgence.

On the contrary, the rational things ought to be done. The line of demarcation can never be drawn very clearly, but it will not be drawn so arbitrarily that a man will be criticised for taking his family out for a ride, as is the case in England. A great many of the cars now running will have their touring bodies taken off, and other bodies put on to work economically for war purposes. Tires will be used right along, more and more every year, no matter what happens. The tire industry is essential, and it is going on, notwithstanding that the production of automobiles may be cut.

In the ultimate working out of the Government's program we are going to find out that we must all make sacrifices for the one great purpose of winning the war. That program is going to carry with it a tremendous readjustment in business. In this country we have all been individuals, and our success as a people has been largely because, as individuals, each one of us could develop the power and possibilities within us, and we have, with ambition and enthusiasm, worked out our individualistic thought.

We are going to find that we must work more as a whole for one thing, the plan of the Government. We are starting in Washington now, where we have a democratic form of government, the most autocratic power the world has ever seen in government matters. Before this war is over the President is going to be the greatest autocrat in the history of the world. His power is going to reach every corporation in the land, and every individual, and regulate to whatever extent is necessary for Government use. This is coming certainly with the prolongation of the war, and I believe we are in for a long siege of it.

We have got to move from a low, inefficient plane of democratic fighting to that high efficient plane of autocratic fighting, and we are expected to do it over night—an impossible thing. But progress is being made, and we are moving forward steadily to the point where this sleeping American giant will be awakened, to become the mightiest fighting force on the earth in this great war. It is the decision of this nation that we are not going to have any people on earth menace us, and we are fighting to make our future secure for all time.

### THE ENEMY TRADING LIST.

In cooperation with other Government departments the War Trade Board has compiled a list of some 1,600 firms in Latin America known as the Enemy Trading list. It is a list of persons, firms and corporations that there is reasonable cause to believe have acted, directly or indirectly, for, on account of, on behalf of, or for the benefit of enemies and allies of enemies. American merchants are prohibited under heavy penalties from trading with any of them without first obtaining a license from the War Trade Board. This list, which should be scrutinized carefully by all importers and exporters, has been pub-

lished in the Official Bulletin, the Consular Reports and in Bulletin No. 1 of the War Trade Board, all of which may be obtained from the Superintendent of Documents, Washington, D. C., also from the War Trade Board, 1435 K Street N. W., Washington, D. C., or any of its branch offices in leading cities.

#### A LABOR DICTATOR MAY COME NEXT.

An article, widely published in the daily press, entitled "Will a Labor Dictator Be One of the Results of the War?" by Raymond B. Price, of the United States Rubber Co., merits a thoughtful reading by every employer of labor. With many astonishing statistics it compares labor conditions in England and America before the war and now; describes the fruit of British experience, cites many facts to show that America is backward in studying and responding to the remarkable sociological changes brought about by the war, and asserts that it is becoming necessary to take a firm stand against continued as well as further abuses on the part of both employer and employe and in favor of justice to both.

FRANK A. SEIBERLING.

The future outlook is summarized very aptly in the final paragraph, which reads as follows:

> To avoid the jealousies, inertia and difficulties of attempting to control the labor problem through any established peace-time department, and because the matter is even more important than that which caused the creation of a food, fuel, and shipping dictator, the time may come when it will be necessary for the public to demand a labor dictator for the period of the war—one who can show the public what the worker may justly demand, what the employer under the new world conditions may hold, and what he must yield; one who can organize a national employment bureau capable of satisfying national employment needs; one who can develop a statistical force, backed with adequate financial support, to study continually the changing cost of living for the various workers in each section of the country in comparison with wages; so that fact instead of guesswork, hunger and strikes, may be the basis of the square deal. Such statistics, coupled with Federal Trade Commission figures showing the cost of production, would put much of the labor problem in mathematical form, so that he who runs may read.

#### ADDITIONS TO THE EXPORT EMBARGO LIST.

By proclamation of the President, dated November 29, 1917, several additional articles of commerce, used by or the product of the rubber and allied trades, have been placed on the export embargo list, and may not after December 1, 1917, be exported from or shipped from or taken out of the United States or its territorial possessions to Abyssinia, Afghanistan, Argentina, Belgium, her colonies, possessions, or protectorates, Bolivia, Brazil, China, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Egypt, France, her colonies, possessions, or protectorates, Great Britain, her colonies, possessions, or protectorates, Guatemala, Haiti, Honduras, Italy, her colonies, possessions, or protectorates, Japan, Liberia, Mexico, Monaco, Montenegro, Morocco, Nepal, Nicaragua, the colonies, possessions, or protectorates of the Netherlands, Oman, Panama, Paraguay, Persia, Peru, Portugal, her colonies, possessions, or protectorates, Roumania, Russia, Salvador, San Marino, Serbia, Siam, Uruguay, or Venezuela, or to any territory occupied by the military forces of the United States or the nations associated with the United States in the war, except at such time or times, and under such regulations and orders, and subject to such limitations and exceptions as the President shall prescribe, until otherwise ordered by the President or by Congress.

The articles in question are rubber, gutta jelutong, gutta percha, balata, antimony, asbestos, mica, arsenic and its compounds, caustic soda, acetic acid, vegetable oils and starch.

#### ALL IMPORTS OF CRUDE RUBBER AND ALLIED GUMS UNDER LICENSE.

A proclamation of the President, dated November 28, 1917, prohibits the importation of a long list of commodities into the United States or its territorial possessions from Abyssinia, Afghanistan, Albania, Argentina, Austria-Hungary, Belgium, her colonies, possessions and protectorates, Bolivia, Brazil, Bulgaria, China, Chile, Colombia, Costa Rica, Cuba, Denmark, her colonies, possessions, and protectorates, Dominican Republic, Ecuador, Egypt, France, her colonies, possessions, and protectorates, Germany, her colonies, possessions, and protectorates, Great Britain, her colonies, possessions, and protectorates, Greece, Guatemala, Haiti, Honduras, Italy, her colonies, possessions, and protectorates, Japan, Liechtenstein, Liberia, Luxembourg, Mexico, Monaco, Montenegro, Morocco, Nepal, the Netherlands, her colonies, possessions, and protectorates, Nicaragua, Norway, Oman, Panama, Paraguay, Persia, Peru, Portugal, her colonies, possessions, and protectorates, Roumania, Russia, Salvador, San Marino, Serbia, Siam, Spain, her colonies, possessions, and protectorates, Sweden, Switzerland, Turkey, Uruguay, or Venezuela, except under license granted by the War Trade Board in accordance with regulations or orders and subject to such limitations and exceptions as have heretofore been made or shall hereafter be prescribed.

The articles of interest to the rubber industry include rubber, raw, reclaimed or scrap; gutta jelutong and gutta percha; gutta siak and balata; antimony, antimony ore or any chemical extracted therefrom; asbestos and cotton.

#### OVERLAND ARMY TRUCK FREIGHT TRAINS.

Not only are motor trucks destined to relieve freight congestion in short haul business, but they will be utilized by the United States Army for overland freight traffic between the Middle West and the Atlantic seaboard. Pathfinders are now mapping out the routes, and in a few weeks, as soon as these routes are decided upon, it is announced by Roy D. Chapin, chairman of the Highway Transport Committee, Council of National Defense, new standard trucks will be moved over them in trains. A truck train will be composed of 27 cargo trucks, two gasoline tank trucks, one baggage and ration truck, one rolling kitchen, one light repair truck, one officers' car and two motorcycles. It will be operated by 76 men under command of a lieutenant. The cargo trucks of the first train will have 3-ton capacity and will move heavily loaded. This is the organization of truck trains to be used in France.

Similar services seem likely to develop elsewhere. For instance, experiments in Georgia have shown that by the use of motor trucks both time and money can be saved in the transportation of soldiers and equipment from Fort McPherson near Atlanta, to Fort Oglethorpe, near Chattanooga, Tennessee, and in the transportation of supplies from the Quartermaster's warehouse at Atlanta to the depot at Fort Oglethorpe. It is estimated that two trains of thirty trucks each, making two round trips weekly, could carry 120 tons, the entire supplies needed, into the camp every three days. Several other southern camps supplied from the Atlanta depot might be served in the same way.

### INDUSTRIAL MOBILIZATION.

The mobilization of the industries of the country was placed on a definite basis at the War Service Conference, called by the Chamber of Commerce of the United States at Washington, December 12. War service committees of five to fifteen members are being formed by the national trade associations of the various industries, and the War Committee of the national chamber will act as the central or executive committee.

Data regarding the facilities and capacities of individual firms, their financial standing and the local industrial conditions will be gathered so as to advise how and where Government work can best be done, and thus act as a clearing house for available plant capacity. The object is to give the Government the benefit of the suggestions and advise of the industries involved in order that needless expense, delays and unproductive capacity may be avoided.

The committee appointed by the Executive Committee of The Rubber Association of America in this connection is published elsewhere in this issue with other association news.

### THE BRITISH SUBMARINE HELMET.

In the Middle Ages the word "helmet" had a limited meaning, but to-day there are helmets of many sorts. No more interesting type than this, although it is little known, is the submarine helmet used by both the Germans and English. The photograph shows the type extensively used in the British Navy. The apparatus works on the same principle as the self-contained diving suit and chemicals are contained within the rubber coat portion which regenerate the air for breathing for a short period. In the event of accident each member of a submarine crew is supposed to don one of these helmets and escape, using either an ordinary hatch or the conning-tower hatch.

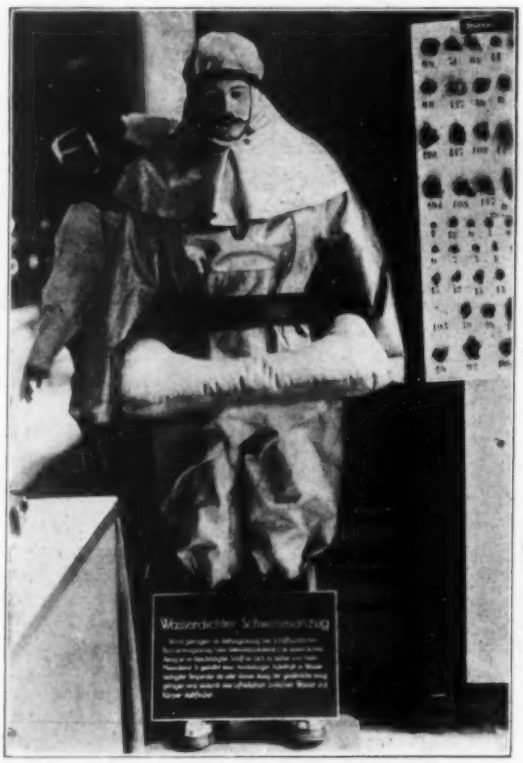
*Press Illustrating Service, Inc., N. Y.*
THE BRITISH SUBMARINE HELMET.

### RUBBER IN SAILORS' WINTER UNIFORM.

The latest uniform adopted by the United States Navy for the winter wear of its sailors is designed especially for patrol duty in European waters and is proof against cold, wind and water. The new coat, with broad collar and hood, is made of imitation leather consisting of rubber and cellulose, and is lined with sheepskin with the wool left on. Heavy arctics, an innovation on shipboard, form part of the outfit. They are worn over ordinary shoes, or replaced by heavy leather sea-boots, if the wearer happens to be serving on a destroyer. Heavy woolen underwear, socks, blanket overshirt and an additional hood complete a suit which should keep the sailors warm in the coldest weather.

### GERMAN WATERPROOF SWIMMING SUIT.

The accompanying illustration shows a waterproof swimming suit displayed at an exhibition in aid of the German Red Cross, held in Berlin in 1916, and opened by Princess Eitel Frederick



*Press Illustrating Service, Inc., N. Y.*
MODEL OF NEW LIFE PRESERVER USED BY GERMAN MARINES.

in behalf of the Kaiser. It is intended to be worn in the event of shipwreck, as an observation suit in the submarine service, as an emergency suit when searching for leaks in damaged ships, and in the hazardous work of mine laying and sweeping. It permits the wearer to stay for hours in water of the lowest temperature, as the suit is worn over the ordinary clothes, so that insulation of the air is formed between water and body.

### NEW GERMAN RUBBER BOMB.

According to the "Air Service Journal," recent dispatches from the fighting front tell of a new rubber-based bouncing bomb recently used by German aviators. The bombs are provided with a resilient base of leather, rubber and rope, which makes them bound upward into the air after striking the ground. The special fuse attached causes the bomb to burst when it has reached the pinnacle of its bound, about six feet in the air.

Butts of these aerial bombs, which have been picked up, show that all are provided with a base believed to be of synthetic rubber and are wrapped around with rope making them resilient.

The bombs are weighted so that the end with the rubber pad will strike the ground first. The impact with the earth sets in motion the time fuse, which detonates the bomb a fraction of a second later when the bomb has bounded into the air.

### COOPERATIVE LONG-DISTANCE DELIVERY.

The ever-broadening use of motor trucks in freight and express business is greatly increasing the demand for solid tires—a demand which will not diminish after the war. Led by the Philadelphia Chamber of Commerce, other similar bodies in various industrial centers are mobilizing truck services to relieve freight congestion and for cooperative long distance de-

livery in less than carload lots. Such services as that now in operation between New York and Philadelphia handle certain classes of business far better than the common carriers of the past, and, while imperative now, seem certain to be maintained as a permanent auxiliary to railroad, express and steamship companies. Henceforth the rubber tire and the national highways will play an ever more prominent rôle in the American transportation system.

#### WATERPROOF GARMENTS IN WARFARE.

Waterproof garments are probably doing more to preserve the health of the world's fighting forces than any other single article of personal equipment, unless it be trench boots. It is the intention of all allied governments that every man in service shall have his poncho, slicker, or, if an officer, his raincoat. Whether the man be of the United States Coast Patrol guarding the waterfront of New York City, or one of the Kilties moving up to the firing line in Flanders after a brief respite beyond the range of the enemy's guns, he has learned that waterproofs not only keep him dry, but are proof against wind and so keep him much warmer. American rubber companies are turning out enormous quantities for our own Government, and great numbers of ground sheets and trench boots have been

*Committee on Public Information, Washington, D. C.*

TRENCH BOOTS AND COMFORT KITS OF SIGNAL CORPS.

going across to our allies in France for a long time past. About 2,000,000 trench boots and arctics have been turned out for the United States Army, and the total number of waterproof garments of one sort or another is not far short of this.

#### THRIFT STAMPS FOR RUBBER EMPLOYES.

Thrift and War Savings Stamps now enable every man, woman and child in the land to do his bit financially, however humble, toward making the world safe for democracy. Nobody is too poor to own at least one of the former, and few in the course of the year 1918 will find it impossible to accumulate several of the latter. Even the errand boy, the office assistant and the laborer in any factory department now have an opportunity to place their savings, however small, at the disposal of their country with benefit to themselves.

Employes to whom the weekly-payment Liberty Loan plan seemed a burden, and those desiring to do something more, can now invest as little as 25 cents at a time. Sixteen Thrift Stamps costing $4 fill a Thrift Card, and on payment of the

*Press Illustrating Service, Inc., N. Y.*

GUARDING THE WATERFRONT OF NEW YORK.

interest adjustment of 12 to 23 cents, according to the month in which the transfer is made, are convertible into a War Savings Stamp, twenty of which fill a War Savings Certificate. Each War Savings Stamp bears 4 per cent interest compounded quarterly, so that on January 1, 1923, it will be worth $5, or a complete War Savings Certificate will be worth $100.

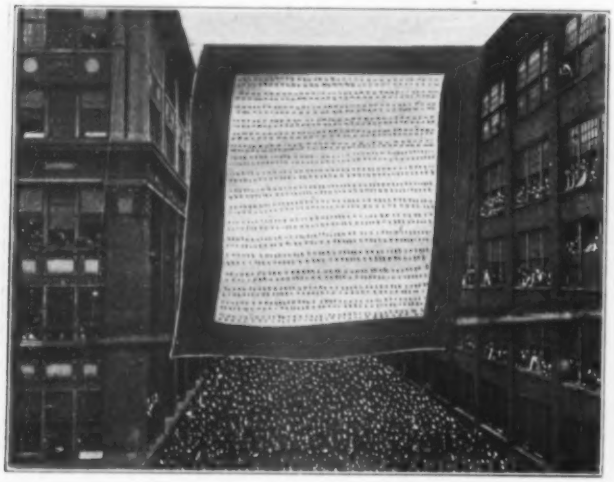
Many rubber companies from coast to coast intend to have Thrift Stamps on sale and to encourage their employes to adopt this form of savings, on the plea that this fight for world freedom is one in which everybody must participate; that those who cannot serve directly, either at home or on the firing line, can help to provide the sinews of war, each according to his means; and that increased production and greater savings must

FLAG PURCHASED BY GOODRICH FACTORY EMPLOYES.

defray the cost of the war, both of which mean personal benefit as well as patriotic assistance to the nation. Several companies that have given Christmas turkeys to employes in the past substituted Thrift Stamps this year instead.

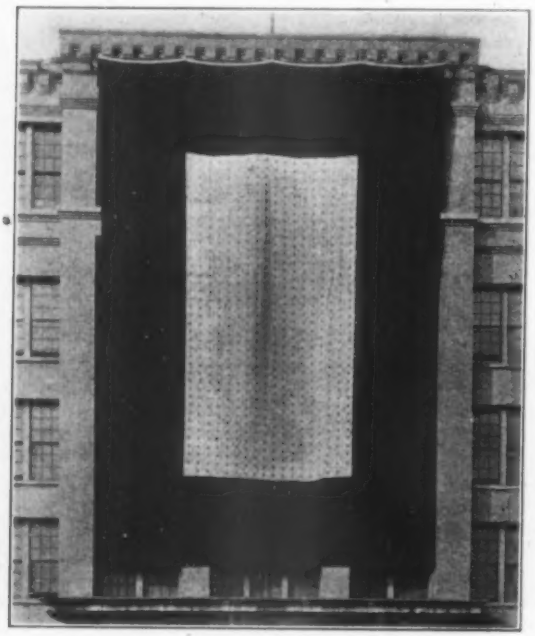
SERVICE AND AMERICAN FLAGS.

A great service flag at the Akron, Ohio, factory of The B. F. Goodrich Co. was raised December 1 with impressive ceremonies in which all the employes participated. It bears 1,414 stars, representing 827 factory employes, 157 office men and 430 men from the company's branches and depots, who dropped their tools, pens and salesmen's kits to take up the rifle. It is a fitting accompaniment of the huge American flag purchased by employes of the company and unfurled for the first time Decoration Day.



THE B. F. GOODRICH CO. SERVICE FLAG

Measuring 50 by 35 feet and covering four stories of the main building of the Firestone Tire & Rubber Co.'s plant in Akron, Ohio, this huge service flag has been raised as a tribute to 721 Firestone men in the service, one of whom, C. B. Lindeman, has received the coveted Croix de Guerre.



THE FIRESTONE TIRE & RUBBER CO. SERVICE FLAG.

A service flag over the main entrance of the factory of the National India Rubber Co., Bristol, Rhode Island, bears 99 stars, representing the number of former employes now in service.

The new service flag of the Fisk Rubber Co., Chicopee Falls, Massachusetts, bears 371 stars and space has been allowed for more, soon to be needed.

SERVICE NOTES AND PERSONALS.

Frank Waldo, of the firm of E. M. & F. Waldo, New York City, dealers in rubber chemicals and compounding ingredients, has been commissioned a second lieutenant of field artillery at Plattsburg and has reported for duty at Leon Springs, Texas.

Donald T. Hood, son of Frederic C. Hood, Hood Rubber Co., Watertown, Massachusetts, is a lieutenant (junior grade) in the Naval Reserve Flying Corps and is at present assigned to Akron under the Superintending Constructor of Air Craft, United States Navy.

DONALD T. HOOD.

Charles Piez, president of the Link Belt Co., Chicago, Illinois, and vice-president of the government's Emergency Fleet Corporation, has now been appointed general manager of the corporation, succeeding Admiral Harris, who was designated to fill this position upon the retirement of Admiral Capps on December 1. Mr. Piez is recognized as one of the ablest engineers and organizers in the country, and at the request of Edward N. Hurley, chairman of the United States Shipping Board, is effecting a reorganization to expedite the nation's shipbuilding program. His grasp upon the whole situation has been so strong and his knowledge of actual conditions in the yards is so definite that excellent results seem certain to follow by combining his functions as vice-president with those of general manager.

A. Schrader's Son, Inc., Brooklyn, New York, reports that fifty-four former employes have joined the colors in various branches of service. The subscription of the company's employes to the second Liberty Loan totaled $365,000.

The mechanical unit which has been raised in Akron, Ohio, has caused a shortage of expert tire repair men, machinists and others who can keep Uncle Sam's motor trucks and cars in fighting trim. An average of 750 persons seek employment in Akron daily, however, and the more promising applicants are being trained in these specialized lines.

William S. Bagby, a well-known automobile tire-distributing agent of Trenton, New Jersey, has enlisted in the Aviation Corps and has been sent to Fort Slocum, New York. J. B. Richardson, his father-in-law, is managing his business interests while the young man is in the army.

Charles Lenox Blodgett, youngest son of William L. Blodgett, secretary of the Hamilton Rubber Manufacturing Co., of Trenton, New Jersey, has enlisted in the balloon section of the Aviation Corps, and expects to report at Macon, Georgia, for practical training before taking a six-weeks course in the government technical school at Omaha, Nebraska. He then expects to sail for France.

Mr. Blodgett was a member of the junior class in the scientific department at Yale when he enlisted.

Lewis E. Harmon, salesman for the Para Rubber Co., automobile tire-distributing agency for Central New Jersey, has enlisted in the Aviation Corps. Mr. Harmon immediately left for Columbus, Ohio, where the corps was mobilized and later commenced training at San Antonio, Texas.

Frank E. Hagemeyer, president of the Hagemeyer Trading Co., an importer of crude rubber, 17 Battery Place, New York City, has been appointed assistant director of the Bureau of Imports of the War Trade Board.

GEORGE T. OAKLEY.

George T. Oakley, son of C. H. Oakley, the president and general manager of the Essex Rubber Co., Trenton, New Jersey, enlisted in April last in the United States Naval Reserve and has now been assigned to the United States steamship *Niagara*, as a second-class seaman.

Theodore E. Smith, Jr., son of the editor and proprietor of the "India Rubber Review," recently completed the second officers' training course at Plattsburg and has been commissioned a lieutenant in the Aviation Section of the Signal Corps. He is now stationed at Kelly field, San Antonio, Texas.

Robert F. Wilson, of the laboratory and tire-testing department of the Miller Rubber Co., Akron, Ohio, has left for France, where he will serve in the capacity of tire expert.

Robert Noah, son of A. H. Noah, Akron, Ohio, formerly president of the Diamond Rubber Co., has enlisted in the mechanical unit of the motor-transport division and expects to leave for France at an early date.

"Junior" Seiberling, son of Charles W. Seiberling, vice-president of the Goodyear Tire & Rubber Co., Akron Ohio, after several army and navy rejections on account of near-sightedness, has been taken into Y. M. C. A. army work and is happy at last.

William G. Hill, secretary of the Apsley Rubber Co., Hudson, Massachusetts, like many other good Americans, is anxious to do his bit for the Government as opportunity offers. He is an expert rubber chemist, having specialized in this particular branch for many years, and he has been called in consultation many times during the last few months to confer with the Council of National Defense regarding the matter of supplying the Government with rubber footwear of Apsley manufacture. He has also offered his services freely to the council in connection with any technical questions which may arise regarding the rubber industry.

Dr. J. E. Stewart, examining physician for the Firestone Tire & Rubber Co., Akron, Ohio, has been commissioned first lieutenant in the United States Medical Corps and assigned to Fort Oglethorpe, Georgia.

High praise has been given The B. F. Goodrich Co. by the Marine Corps, the San Francisco Advertising Club and Senator Hiram Johnson, of California, for the assistance rendered the Marines by the big rubber corporation. Unlike many branches of the nation's military forces, the Marines have no advertising appropriation. E. H. Barnum, advertising manager of the San Francisco branch of the Goodrich company, was apprised of this at the outbreak of the war and volunteered to supply all the advertising matter for the Marines in the West gratis. This includes cuts, stories, advertisements and newspaper distribution. So powerful was Mr. Barnum's assistance that the Marines had little difficulty in filling their high quotas. A few days ago, at a dinner, Senator Johnson publicly commended the action of the Goodrich company in supporting this potent branch of the service.

The Goodyear Tire & Rubber Co., Akron, Ohio, is much interested in the men in training camps all over the country, for more than 1,600 have gone out from the organization to join the colors. So it was that the Goodyear Friars, a 50-man minstrel organization of the company, recently journeyed to Camp Sherman, Chillicothe, Ohio, and gave the boys a rousing minstrel and vaudeville show in the Y. M. C. A. auditorium. Vice-president C. W. Seiberling and P. W. Litchfield were in attendance and are enthusiastic in their praise of the wonderful work the Y. M. C. A. is accomplishing.

## THE RUBBER TRADE ROLL OF HONOR.

FISK RUBBER CO., CHICOPEE FALLS, MASSACHUSETTS.

QUARTERMASTER'S CORPS.

Jack Burgh, Rene Pouffe,
Frank Corbett, Donald Thompson,
Joe Sullivan, Camp Gordon, Atlanta, Georgia.

GLOBE RUBBER TIRE MFG. CO., TRENTON, NEW JERSEY.

T. Jenkins, J. Keating.

KELLY-SPRINGFIELD TIRE CO.

BALTIMORE BRANCH.

Thomas Delaney.....165th Infantry, U. S. A.
Charles J. Holmes.....Lieut.-Com., U. S. N.

COLUMBUS DEPOT.

R. W. Llewellyn.....2nd Ohio Field Hospital Co., 37th Div., U. S. A.

NEW YORK BRANCH.

William F. Daly.....Co. C, 12th Reg., N. Y. N. G.
H. Belden Joseph.....2d Lieut., Quartermaster's Dept.
John M. Kelly.....Co. B, 71st Reg., N. Y. N. G.
John W. Maginnis.....Seaman, 1st Bat., Naval Militia, N. Y. N. G.

ATLANTA BRANCH.

Vance L. Hunter.....Battery B, U. S. F. A.
Jack Manning.....Battery B, 116th U. S. F. A.

PHILADELPHIA BRANCH.

William A. Brown.....Battery F, 312th U. S. F. A.
C. E. Rodgers.....Batery F, 312th U. S. F. A.

K. & W. RUBBER CO., DENVER, COLORADO.

Joseph Benton, Lee Riley,
Leo Brubaker, Clarence Ritchey,
Harry Cassel, Jay Shaffstall,
Philip Fritzinger, Russel Sonner,
Leo Hominger, Howard Wharton,
E. C. Markham, John E. Yeagle.

ESSEX RUBBER CO., TRENTON, NEW JERSEY.

INFANTRY.

Alex. Calcer, Ross Dale,
Frank Backes, Yon Orson,
Jesse Sperling, Jos. Martin,
Fred J. Rich, Jack Wager,
Jos. Carpenter, Thos. Brennan,
Edward Anclien, Geoffrey Sheridan.
Anthony Comiskey,

NAVY.

Gustave Fisher, Elwood Blydenberg,
John Simcock, George T. Oakley,
Luther Blydenberg, George Schoenhaar.
Anthony Zeis,

Alex. Ryan.....Marine Corps.
Elmer Cross.....Field Artillery.
D. Medkiff.....Aviation Corps.
John Terry.....Wireless, U. S. N.

## MARTYRS TO THE CAUSE OF LIBERTY

NEWS of the recent death of Private Charles Call, 104th Infantry, U. S. A., "somewhere in France," makes necessary the above heading to accompany "The Rubber Trade Roll of Honor." May it be needed but seldom. Private Call was the first of the former employes of the Fisk Rubber Co., Chicopee Falls, Massachusetts, to sacrifice his life for the cause of liberty, and we believe the first man identified with the rubber industry to pay the supreme price "over there." That he did not die in the thickest of the fight matters little; he was serving his country and until the last ready to do the biggest bit that any man can undertake.

The death is reported of Ensign P. W. Page of the United States Navy. He was, previous to his enlistment, a salesman from the Boston branch of The B. F. Goodrich Co., Akron, Ohio. He entered the employ of the company at Akron in 1913, was transferred to the Cincinnati, Ohio, branch the next year. In 1915 he was made manager of the Portland, Maine, branch, and in March, 1916, was appointed traveling representative of the Boston branch, resigning to enlist in the navy last May.

# Former German African Possessions.

IT would be rather premature to attempt to trace the map of Africa now as it is likely to be after the conclusion of the war. A number of changes have been made during the last three years. How permanent these changes will prove to be is one of the questions involved in the final arbitrament.

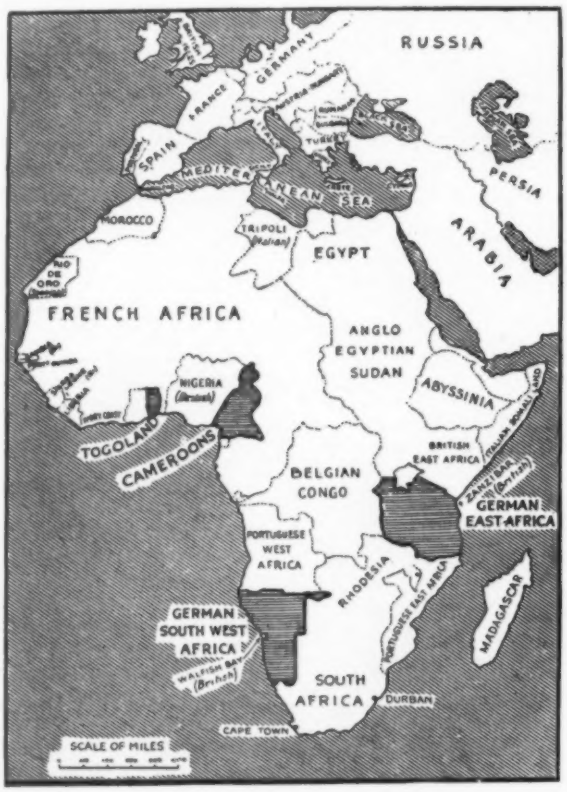
On the first of August, 1914, Germany had four colonies in Africa with an aggregate of over 900,000 square miles and with a population of nearly 12,000,000. To be more specific, they were as follows:

| | Area, Square Miles. | Population. |
|---|---|---|
| Togoland | 33,700 | 1,000,000 |
| Cameroons | 190,000 | 3,500,000 |
| German South West Africa | 322,450 | 200,000 |
| German East Africa | 364,000 | 7,000,000 |
| Total | 910,150 | 11,700,000 |

The mother country had already built up a commerce of nearly $40,000,000 with these colonies and was securing rubber from them to the extent of 4,000 tons a year.

German possessions in Africa do not date back to remote history; as a matter of fact they are hardly more than thirty years old. In 1882 the German Colonization Society was founded in Berlin, and these African colonies were among its first tangible results. Within two years after the founding of this society Germany had sent explorers into various parts of Africa, had laid claim to four widely separated territories and had started to plant the colonies mentioned above. It cannot be said that Germany has ever found these colonies particularly remunerative, but at the same time they had great potential value, and it is safe to say that they will not be permanently abandoned without great efforts for their retention.

The story of military operations in Africa which has reached the outside world—that is, the world outside of the war offices of the Allies—has naturally been quite fragmentary and incomplete, but the general results of these operations during the past year are now pretty well known. The first of the German African possessions to fall into the hands of the enemy was Togoland, which was occupied by a British force, sent out from British Nigeria, on August 26, 1914. The resistance seems to have been comparatively slight and the occupation of this colony by the British easily accomplished. In Cameroons the attacking forces have consisted chiefly of French, and they have met with fairly uniform success, but this is a large colony, six times the size of Togoland, and from its physical characteristics the invader was under considerable disadvantage, so that the Germans for some time held part of this territory.




MAP SHOWING FORMER GERMAN AFRICAN POSSESSIONS.

The operations in German South West Africa have been perhaps the most spectacular in the African campaign. The British forces were led by that experienced veteran, General Botha, who, under great difficulties, finally forced the surrender of the German forces, when the whole territory fell into the hands of the British.

In German East Africa the first attack was made by the Germans, who marched north into British East Africa and attempted to capture Mombasa. The fortunes of war in that country have, however, gone chiefly with the British, whose troops consist principally of the Indian Imperial Regulars. For a while the Germans held some parts of this territory, the coast and many other important points, but on December 1, 1917, General Vandeventer sent word of the capture of East Africa, the last of Germany's possessions on the Dark Continent.

Much of this lost territory produces rubber. From German East Africa the wild rubber exports, mainly *Landolphia*, amounted to 725,584 pounds in 1910, but fell off to 379,938 pounds in 1912. The cultivation of Ceara rubber, however, had, previous to the outbreak of the war, grown to the extent of 248 plantations with a cultivated area of 63,990 acres, and 20,558,965 trees. These were mainly owned by British companies, and it is probable that their product has been commandeered by the German Government since the war began.

German West Africa produced good qualities of wild rubber, mainly *Funtumia elastica*. Both *Funtumia* and *Hevea* have been cultivated. The exports of plantation rubber rose from 5,922 pounds in 1909 to 53,040 pounds in 1912.

Togoland's exports in 1910 were 137 tons and in 1911, 135 tons. This was mainly wild rubber, though some plantations were becoming productive.

Cameroons produced great quantities of vine rubber, but of late years the yield has fallen off considerably. The total export in 1911 was 5,957,516 pounds, and in 1912, 6,184,222 pounds. Cultivated rubber to the amounts of 23,912 and 53,404 pounds was exported in the two years mentioned.

Thus have passed out of the possession of Germany all of her promising rubber-producing colonies, including the whole of German New Guinea in the East Indies. Although the planting of rubber trees there, chiefly *Ficus* and *Hevea*, proceeded on a considerable scale for a few years, beginning in 1909, the labor shortage prevents a large development of the industry; and while most of the planted trees have now reached the tapping age the present output is not very large. Unless Germany regains her African colonies by treaty at the end of the war she will find herself absolutely dependent upon foreign sources for crude rubber in order to resume her former large rubber goods industry.

# The Use of Magnesia in Rubber Compounds.

*By Lothar E. Weber, Ph. D.*

THE utilization of magnesia compounds in the rubber industry has been practiced for many years, but it is only within recent times that compounds of magnesia have assumed their popular and wide-spread use. The rubber pioneers observed at a very early date the peculiar property which oxide of magnesia exhibits in the vulcanizing process, though it is only within the last twenty years or so that the use of this material has become so general in the various lines of rubber manufacture.

There are two kinds of magnesia which find extensive application in the rubber industry, namely, oxide of magnesia, and carbonate of magnesia. To be sure, talc and asbestos both contain magnesia in considerable proportions, but in each case the magnesia is present as a silicate of magnesia. While talc is used in enormous quantities in the rubber industry, it finds little application except as a dusting powder and embedding medium during vulcanization. The use of asbestos is rather limited, being confined chiefly to compounds that are expected to withstand the action of heat. From the standpoint, therefore, of the rubber compounder, it is the oxide of magnesia and carbonate of magnesia which are of especial interest. It may be desirable to discuss the latter first, as it is relatively the less important of the two.

### CARBONATE OF MAGNESIA.

Carbonate of magnesia is one of the lightest fillers available for the rubber manufacturer, its specific gravity being about 2.2. Carbonate of magnesia of this gravity is not a naturally occurring substance, but is prepared synthetically in what chemists call the "wet way." That is to say, it is prepared by precipitation out of a water solution of a soluble magnesium salt. The composition of carbonate of magnesia thus prepared is approximately $MgCO_3.H_2O$. On account of its low specific gravity and high state of subdivision, the material comes on the market as a very fluffy powder.

In carrying out routine analyses on this material it is usually sufficient to determine the loss on ignition, and to carry out a qualitative determination to assure the absence of any adulterating ingredients. The loss on ignition should be about 56 per cent.

One occasionally finds a carbonate of magnesia offered for sale which is merely ground magnesite. Magnesite is a naturally occurring mineral having the chemical composition of carbonate of magnesia, $MgCO_3$. It is differentiated from the synthetic product by a much higher gravity, namely, about 3.0, and by usually containing an appreciable amount of insoluble impurities, notably silica. On account of the difference in gravity of these two carbonates of magnesia, the synthetic product is usually referred to as light carbonate of magnesia. From the standpoint of the rubber manufacturer it is much the more preferable material.

While carbonate of magnesia is used more as a filler than as an accelerator, it nevertheless has a pronounced action in the vulcanizing process. When present in small quantities, that is to say, around 3 or 4 per cent, its action is not very marked; but when present in larger quantities, from 10 per cent and upwards, it exerts a decided firming and hardening action. The use of this material has become quite popular in some lines of mechanical goods, notably rubber heels. Under certain conditions it does indeed impart a firmness to the compound without at the same time unduly decreasing its resiliency, a combination of properties which result in the vulcanized article exhibiting what in the vernacular is referred to as "snappiness."

### OXIDE OF MAGNESIA.

Oxide of magnesia is usually prepared by the ignition of magnesite, the naturally occurring carbonate of magnesia referred to above. On account of its method of manufacture this product is usually designated as calcined magnesia. Its gravity is about 3.3 If the calcination process were carried to completion, one would naturally expect the oxide of magnesia to show no loss on ignition. As a matter of fact, all commercial oxides of magnesia do show loss on ignition, which is seldom less than 7 per cent. This, of course, means that the oxide contains some carbonate and usually some water, as the calcined product has a great affinity for moisture which it readily absorbs from the atmosphere. In view of what has already been said regarding the relative inactivity of carbonate of magnesia when present in small quantities, it is important that the amount of carbonate of magnesia present in the oxide be confined to as low a limit as possible, and, furthermore, that the amount of the loss on ignition be always uniform. It is obvious that if the calcined magnesia varies in its content of carbonate of magnesia, the accelerating action of the oxide will be affected. It is therefore important that calcined magnesia be carefully examined for its loss on ignition. As has already been stated, this value is seldom under 7 per cent, and frequently is as high as 11 per cent. However, the uniformity of this loss on ignition is of much more importance than its actual figure.

Calcined magnesia is seldom used in the vapor cure, but is used very extensively in open steam, press cure and dry heat. It is a very powerful accelerator, though its action differs markedly according to the conditions under which the compound in question is cured. It exerts its greatest action in open steam, is less powerful in the press, and still less so in dry heat. In open steam, calcined magnesia is seldom used in excess of 3 per cent on the weight of the compound. In the majority of cases it will be found to be present to not more than 1 to 1½ per cent. On the other hand, in press work, while a small per cent of it is frequently employed, as much as 5 per cent or even more is by no means uncommon. In dry heat work, however, it is frequently employed to the extent of 10 per cent.

In press work magnesia has found considerable application in the past in producing non-blooming stocks, especially in cases where the addition of litharge is undesirable on account of considerations of gravity or color. In dry heat work calcined magnesia has assumed importance in the manufacture of light colored articles. As is well known, rubber, sulphur and inert fillers do not cure in dry heat. Even the addition of zinc is insufficient, the presence of litharge being required. Obviously, for light colored compounds and especially white compounds litharge is out of the question. Its place is taken to some extent by lime, but preferably by calcined magnesia.

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A MIXTURE OF CASTOR OIL AND AMYLACETATE is jellied by chloride of sulphur. On standing for several days it completely liquifies. The acid is neutralized with barium carbonate, and the precipitate removed by filtration. The solution may be employed direct for waterproofing fabrics, leather and paper, or may be mixed with solvents, such as alcohol, benzol, acetone or acetic ether and used to dissolve nitrocellulose, producing a glossy varnish or a paint with addition of pigments. It serves as a leather polish or surfacing for oilcloth. It is quick-drying, resists the action of soap, and will stand washing and changes of temperature. [French patent No. 480,038, M. Poto.]

# What the Rubber Chemists Are Doing.

*THE following five articles relating to Hevea latex and plantation rubber are abstracted from "The Communications of the Netherlands Government Institute for Advising the Rubber Trade and Industry."*

### COLLOIDAL AGGREGATION OF RUBBER IN LATEX.

Experiments by Van Heurn show that the rubber in latex is present in a high degree of polymerization. The degree of polymerization was found by determining the viscosity number of the rubber dissolved in benzene. For these experiments Van Heurn used a latex preserved with ammonia, which had been dialyzed for six days. After dialyzation this latex contained 22 per cent of caoutchouc.

When a drop of this latex, greatly diluted with water, was brought into contact under the microscope with a drop of benzene the caoutchouc globules, at first very small, increased in size, becoming, after some minutes, ten times as large as they were originally. Some of these inflated globules, still showing the Brownian movement, when arriving at the dividing line of water and benzene, were seen to wander into the benzene and disappear. The explanation was, that benzene dissolves in water and is yielded by this water to the caoutchouc globules.

Van Heurn's investigation on benzene solutions of rubber from the latex showed that the viscosity number, an excellent measure for the degree of polymerization of rubber dissolved in benzene from latex without coagulation, is certainly not lower than the viscosity number of rubber obtained from the same latex by coagulation. At present it may be concluded with great probability that the original condition of the caoutchouc molecule in the latex is of great importance for the quality of the raw rubber.

### NON-CAOUTCHOUC COMPOUNDS OF LATEX.

The principal compounds which occur in latex, next to caoutchouc, are inorganic nitrogenous compounds, usually designated as proteins, resins and compounds wrongfully called sugars. These non-caoutchouc compounds form more than 15 per cent of the dry material of latex. As rubber obtained by acid coagulation contains about six per cent, and that by evaporation contains the total of these secondary compounds, their importance is obvious.

Dekker investigated the nature of the organic constituents by dialyzing preserved latex which yielded 29 per cent rubber on acid coagulation and 32.4 per cent on evaporation. By two dialyses it was possible to remove a total of 3.2 per cent of solid matter, so that all the soluble parts of latex, not coagulable by acid, can be removed by dialysis. Analysis of the dark-brown hygroscopic residue gave the following results calculated on the original latex; protein, 0.45 per cent; acetone extract, 0.66 per cent; ether extract, 0.25 per cent; acetone extract of dialyzate evaporated with dilute hydrochloric acid, 1.59 per cent. Analyses from rubbers prepared in different ways have demonstrated that from rubber obtained by evaporation, in which the soluble parts of latex are present, the acetone extract must be considerably higher than that from rubber of the same latex from which these substances have been removed during the coagulation or by washing.

### DIFFERENT METHODS OF PREPARING RUBBER.

Experiments were made on dialyzed and undialyzed latex and rubber prepared by acid coagulation and evaporation of the latex, using preserved latex from trees planted in 1898. Dialyzed latex coagulated less readily than the original; slightly acidulated with acetic acid, it kept for a few weeks without there being any marked coagulation, and coagulated only slightly on heating to boiling. The presence of the dissolved compounds of latex seems to assist coagulation, as shown by adding a drop of the dialyzate to the dialyzed latex and heating, when complete coagulation resulted. Rubber from dialyzed latex contains less resin than from that not dialyzed, but the difference by acid coagulation is slight. Rubber prepared by evaporating latex is higher in moisture, resin, protein and insoluble matter. It also has a lower viscosity number. The yield of rubber by evaporation is 12 per cent greater than that obtained by acid coagulation, and it vulcanizes more rapidly.

### TRANSPARENT CRUDE RUBBER.

The transparency of crude rubber is thought to be caused by very unfavorable circumstances and sometimes by an abnormal percentage of moisture. Fol observed that raw rubber held in the hand becomes transparent. Van Heurn found that when elongated strips of *Hevea,* unsmoked, were shrunk by heating, the rubber became transparent. Observation by the Institute has shown that a short heating of crude rubber at temperatures below 40 degrees C. does not alter the viscosity number nor the properties after vulcanization. It may safely be concluded that transparent rubber can be as good as non-transparent.

### SPOTS ON CRUDE RUBBER.

It is often possible to observe spots of irregular structure in sheet rubbers, and it is not impossible that these appearances are caused by the presence of caoutchouc of a different degree of polymerization. It is certain that these spots are not made by microbes. Van Heurn has proved experimentally that the same sheet is by no means uniform.

Spots caused by bacteria or fungi have sometimes been found on rubber and identified with the microscope. The mechanical properties were, however, by no means unfavorable; there is no doubt that the microbes had developed at the cost of secondary compounds.

*[To be continued.]*

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### INFLUENCE OF THE AMOUNT OF ACETIC ACID ON THE INNER QUALITIES OF RUBBER.

In the Communication of the Central Rubber Station at Buitenzorg, Java ("Archief voor de Rubber-Culture," Vol. 1, No. 1). Dr. O. de Vries summarizes his researches on the influence of the amount of acetic acid on the inner qualities of rubber as follows:

1. For quantities of acetic acid ranging from the minimum to four times as much, the tensile strength of the rubber shows no difference.

2. The slope or type remained the same in all experiments in which the rubber was prepared as crêpe. In one experiment with smoked sheet the type was slightly less when using a double quantity of acetic acid, but this result will have to be checked by further experiments.

3. The rate of cure diminishes with increasing quantities of acetic acid, for example, by ten minutes in 135 when using four times the minimum. For double the quantity of acetic acid the difference is sometimes five minutes, but in several cases it was found to be negligible.

4. The viscosity decreases somewhat with increasing quantities of acetic acid, the difference not exceeding 0.10, however, even for four times the minimum amount, and often remaining near to or within the limit of experimental error (0.02 to 0.03). The use of acetic acid in practice will not form a factor causing important variation in the inner qualities of the rubber.

VULCANIZATION TESTS.

Investigations at the Imperial Institute on samples of plantation rubber from Ceylon are reported by Mr. L. E. Campbell, in Bulletin No. 32, Department of Agriculture, Ceylon.

The rubbers tested were prepared from trees from 16 to 20 years old in order to determine the effect of diluting the latex in varying degrees before coagulating.

The results of these experiments are somewhat inconclusive. The effect of dilution on the rate of cure is not very marked. The samples prepared from undiluted or slightly diluted latex have in each case given good results in the mechanical tests, whereas those prepared from much-diluted latex are in some cases distinctly lower.

The results are too irregular to allow of the conclusion that excessive dilution of the latex has a deleterious influence on the qualities of the rubber, although this appears to be so in some cases. In other instances, however, this was not the case, whilst the diminution effected by dilution in the quantities of mineral constituents, protein, and resin, may be of importance.

TESTS ON LIFE OF RUBBER INSULATING COMPOUNDS.

The Underwriters' Laboratories have been conducting tests for about two years on the life of rubber-insulating compounds employed in rubber-covered wires and cables. About 250 tests are summarized as representative of results secured throughout the investigation. There was shown an average loss of ten per cent for tensile, and 18.2 per cent for elongation by aging. The work showed that permanent set is not materially affected by three years' aging. Most of the samples showing excessive deterioration were such as exceeded the specified total of 80 per cent for acetone, chloroform and alcoholic potash extracts, total sulphur and ash. Conversely, most of the samples showing super-standard qualities in the chemical tests performed favorably.

RUBBER IN CEYLON.

The report of the Director of Agriculture of Ceylon for 1916, referring to the rubber chemical research work, states that the year 1916 brought to a definite stage the investigations into the effects of various ways of preparing raw rubber. It has been found that acetic acid is quite satisfactory as a coagulant as far as the physical properties of the vulcanized rubber are concerned, and that at present there would appear to be no advantage in using any other coagulant in its place. Plain, unsmoked sheet rubber has been found to be usually of excellent quality; smoking of sheet rubber increases the time of vulcanizing considerably. Crêpe rubber invariably takes a much longer time to vulcanize than the corresponding sheet. Rubber which is allowed to remain in the wet condition after coagulation, appears to be invariably quick-curing. Rubber loses some protein on washing. It may be said that the causes of variability in plantation rubber are beginning to be understood.

## CHEMICAL PATENTS.

THE UNITED STATES.

RUBBER COMPOUND.—A mixture of rubber, granulated iron slag and cork flour. The quantity of rubber in the compound, by weight, being less than the combined weights of the iron slag and cork flour. [Eugene Van Vargyas, Washington, District of Columbia, assignor to Jacob G. Keener and E. R. Shupe, trustees. United States patent No. 1,246,192. This is the same as British patent No. 107,107.]

VULCANIZED RUBBER COMPOSITION AND METHOD OF PREPARATION. A rubber composition containing finely-divided insoluble zirconium compound and vulcanizing agents. The composition is characterized by high tensile strength and toughness due to the presence of the zirconium compound. [Henry Alfred Gardner, Washington, District of Columbia, United States patent No. 1,247,257.]

COMPOSITION FOR SEALING TIRE PUNCTURES. A composition consisting of the extract obtained from boiling guayule and candelilla plants in water to which is added asbestos and fullers' earth. [Ricardo Garzo, San Antonio, Texas, United States patent No. 1,247,814.]

PROCESS FOR REGULATING TREATMENT OF VULCANIZABLE PLASTICS. A process of treating a vulcanizable plastic by the application of a vulcanizing medium causing expansion which may be regulated. [Erwin E. A. Meyer, assignor to Morgan & Wright, both of Detroit, Michigan. United States patent No. 1,247,985.]

VULCANIZED CUMARON-RUBBER PRODUCT AND PROCESS OF MANUFACTURE. A vulcanized composition rubber product comprising natural and reclaimed rubber, cumaron resin and extending materials. [Alfred G. Wells, Caldwell, New Jersey. United States patent No. 1,248,226.]

CELLULOID-LIKE SUBSTANCE AND PROCESS OF MAKING. Proteidal substances, such as beans, peas, wheat, corn, or other leguminous products, are crushed to break down the cellular structure. Excess oil content is removed by treating the mass with benzine. The protein is separated in various ways, such as treatment with an alkaline solution of caustic or carbonated alkali, or caustic or carbonated ammonia, and the proteidal substances are precipitated from the liquid. Precipitation of the refined proteidal substance is accomplished by the addition of a suitable acid or a suitable ferment. The refined proteids are subjected to the glutenizing action of various agents, such as inorganic acids, fatty or oxy-fatty acids, aromatic acids or phenols. The proteids are thus converted into their soluble derivatives, producing a transparent, nearly colorless, viscid, sticky mass, which can be combined, by kneading, with a condensing agent, molded into any desired form and dried. The result is a celluloid-like material. [Sadakichi Satow, of Sendai, Japan. United States patent No. 1,245,976.]

CHLOR-SUBSTITUTION PRODUCTS. A process for the preparation of chlor-substitution products of the saturated paraffin hydrocarbons by the use of chemically active light and halogen carriers, which favor the chlorination. [Charles Blanc, Akron, Ohio, assignor to the Goodyear Tire & Rubber Co. United States patent No. 1,248,065.]

REMOVAL OF RUBBER FROM CANVAS. The object of this invention is to separate the rubber from the canvas of worn-out pneumatic tires to salvage the canvas for remanufacture. The canvas plies are separated with the aid of xylol and the embedded rubber removed by digestion in vacuum with boiling xylol. [Henry Debauge, Paris, France. United States patent No. 1,248,463.] See THE INDIA RUBBER WORLD, March 1, 1917.

THE UNITED KINGDOM.

VULCANIZATION ACCELERATOR. Quicklime is slaked with a solution of sodium or potassium hydroxide and the resulting soda or potash lime is employed as a fine powder. Suitable proportions are found to be ten parts of quicklime to three parts of sodium hydroxide or four parts of potassium hydroxide. By using one per cent of such a powder in a rubber mixing the alkali hydroxide can be more evenly distributed than if used alone.

Another method is to use the caustic alkali in conjunction with an organic solvent such as glycerol. If this is heated to about 175 degrees C. to expel superfluous water, the hydroxide can be dissolved and alkali glyceroxide obtained. Potassium hydroxide is found somewhat preferable for this method and also for the quicklime one. One part of potassium hydroxide may be used with four parts by weight of glycerol, although the proportions may be widely varied. One or two per cent of such a solution may be mixed into rubber uniformly without there being a tendency to produce porosity of the rubber.

A mixture of rubber with five per cent of the solution, when cured for 90 minutes at 40 pounds' pressure, undergoes complete vulcanization, practically no sulphur remaining uncombined. Other organic compounds may be employed for the solution of the alkali, such as glycol, for example. [The Dunlop Rubber

Co., Limited, London, and D. F. Twiss, Royal Road, Sutton Coldfield,—both in England. British patent No. 110,059.]

PLASTIC COMPOSITIONS: COATED FABRICS. A composition of powdered leather waste boiled in caustic alkali to saponify the fat in the leather, and rubber or like resilient vulcanizable binding material, with or without filling and fibrous material and sulphur. The composition is used as a coating on canvas or other backing and vulcanized. [J. S. Campbell, Room 35, Broad Street House, New Broad street, London, England British patent No. 109,530.]

PROCESS OF RECOVERING RUBBER WASTE. Vulcanized fibrous rubber waste is so treated as to effect material saving in ingredients, chemicals, power, heat, washing and other handling expense. The finely divided waste is defiberized in water containing 25 per cent of sulphuric acid. The acid mass is then made alkaline with powdered lime and dried to contain eight to ten per cent of moisture. Next a saponifiable oil, glyceride, wax or fatty substance is added, also heavy mineral oil or grease with or without resins or bituminous substances, and the mixture devulcanized in steam. The devulcanized mass is dried and worked up as usual with reclaimed rubber. [Mechanical Rubber Co., 73 Reade street, New York. British patent No. 110,661.]

THE FRENCH REPUBLIC.

PLASTIC MASSES having the properties of celluloid, ebonite, or gutta percha. [Ivan Ostromislenski, French patent, No. 481,346. November 22, 1916.]

RUBBER PAVEMENT. A composition of rubber, asphalt or bitumen for use as a road surface. [Ch. de Caudenberg, French patent No. 484,258. January 16, 1917.

HOLLAND.

RUBBER FROM HEVEA LATEX. The latex, without previous coagulation, but preserving all non-volatile ingredients, is dried in a current of air at 80 degrees C. and above. [M. G. T. M. Kerbosch. Holland patent No. 2,072. July 2, 1917.]

ISOPRENE. Isoprene is made from fractions of petroleum benzine containing pentane. [Badische, Holland patent No. 2,051. July 2, 1917.]

NORWAY.

ANTI-SKID COMPOUND. A mixture of rubber, sulphur and hair, vulcanized. [C. Pacchetti, Norwegian patent No. 27,932. May 21, 1917.]

AUSTRALIA.

ARTIFICIAL RUBBER. A composition of matter consisting of glue, glycerine and molasses, to which is added crude rubber, pigments, vulcanizing agents and a toughener such as formaldehyde. [John Flint, McLachland avenue, Rushcutters Bay, Sydney, New South Wales, Australian patent No. 600, March 21, 1916.]

INDIA.

ARTIFICIAL RUBBER.—The same composition of matter and the same inventor as the above Australian patent No. 600, March 21, 1916. [J. Flint, No. 2980.]

## LABORATORY APPARATUS.

### GASOLINE DISTILLATION APPARATUS.

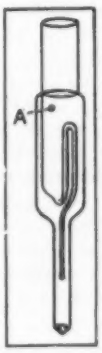
A COMPLETE gasoline distillation apparatus, made according to the specifications given in the year-book of the American Society for Testing Materials, is shown in the illustration. It consists of a copper condensing trough, to which an Engler distillation flask is connected, the flask is clamped to a ring stand and rests on an asbestos mat, with a circular opening for shielding the sides of the flask from direct flame. Burner and flask are surrounded by a guard or box of Russia iron for better regulation of the temperature.

The distillation test is made as follows: 100 cc. of the gasoline at room temperature is transferred to the measuring cylinder and carefully poured into the Engler flask, after which the cylinder is replaced under the condenser tube outlet and used for collecting and measuring the distillate without further draining or wiping out. The burner flame is lighted and the boiling of the material to be tested gradually started, taking care to note the temperature at which the first drop falls from the condenser tube outlet into the cylinder. This is considered the

initial boiling point or start. The flame is now slightly increased until a steady boiling is obtained and distillation proceeds at about three or four cc. per minute. The cold distillate is collected in the measuring cylinder, and the temperature observed for each ten cc. collected until the end point is reached. The temperature of this point is also taken, the flask now being practically dry. At least 97 per cent should be condensed. In testing some blends the measuring cylinder may require to be surrounded with ice. [Central Scientific Co., Chicago, Illinois.]

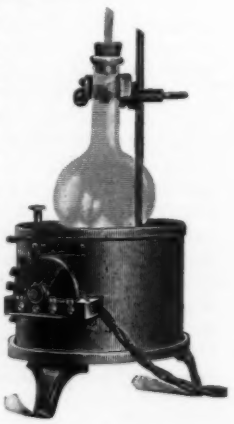
### A MODIFIED SOXHLET EXTRACTOR.

A modification of Blount's apparatus by Dr. D. F. Twiss and W. McCowan is described in the "Journal of the Society of Chemical Industry," 1897, p. 692, and as follows through "Chemical Abstracts." In Blount's apparatus there are two or more apertures of indefinite size by which the vapor passes into the inner compartment. In the modification only one aperture *A* is recommended (0.7 cm. diameter). This restriction causes a very slight excess of pressure and temperature in the outer jacket, sufficient to maintain the liquid in the extractor cup in gentle ebullition. In the new device the double jacket is shortened and the neck formed by an additional glass collar. The smaller surface of the outer jacket causes a reduction in the amount of air-cooling by which vapor is condensed before it can reach *A*, and so renders the apparatus somewhat more rapid in action.




### ELECTRICALLY HEATED WATER BATH.

The illustration shows an electrically-heated water bath. It is designed to replace the ordinary Bunsen-burner-heated bath in laboratories where electricity is available. It consists of a copper container in one piece, nickel-plated, lagged with one inch of magnesia-asbestos and protected by red fiber. The bath is attached to an enameled cast-iron base, fitted with a nickeled supporting rod to which laboratory clamps may be attached for the support of flasks, etc. The top is fitted with a set of porcelain rings to accommodate different sizes of flasks or dishes. [Central Scientific Co., Chicago, Illinois.)



# Wool Conservation and Military Efficiency.

*By Herbert P. Pearson and Fred Sundermann, Jr., of the Cravenette Co.*

MISCONCEPTION regarding the term waterproofing and the waterproofing industry is responsible for two unfortunate facts. The United States soldier is clothed in materials which absorb water nearly as easily as the paper you blot your signature with and the textile industry in general is ignoring the resistance to such absorption as an important factor in the conservation of wool.

The reason for this condition of affairs is that the minds of nearly all army officials and of some textile experts are clouded with the idea that to make a fabric water-resistant is to waterproof it and that to waterproof it is to close up its pores and change its appearance and other properties. They are right about the effects of waterproofing because, as the dictionary tells us, a waterproofed fabric is one that is impervious to water and you can't make a textile fabric impervious without closing up the holes that are in it, that is to say the spaces between the fibers. Even the company we have the honor to represent has not as yet succeeded in making a hole impervious to water!

Where the responsible parties go wrong—and it sometimes takes thirty minutes' personal lecturing to make them see that they may be wrong, is in assuming that a fabric cannot be benefited in the direction of waterproofing without being waterproofed.

We propose to demonstrate how, without change of appearance or filling up of pores, the woolen fabrics used in army uniforms and overcoats are being successfully processed to make them much less absorbent, much quicker to dry when wetted and of a much better wearing quality, by the simple means of treating the fabric in order to lower the surface tension of the fibers as compared with that of water.

To these processes we are attaching the name "water-resisting" and to the fabrics processed the term "water-resistant" to distinguish them from waterproofing processes and impervious fabrics. Right here it would be well to state that many wearers of raincoats made of fabrics, the pores of which are not closed, are deceived by the terms "showerproof" and "rain-proof" under which they are sold. A shower is rain anyway and rain is water, which, if pressed hard enough into the fabric by the weight of the raindrops accompanied by the driving of the wind, will go through any porous fabric if the pressure is great enough, however efficient the water-resisting process. Even a raincoat made of rubberized fabrics is apt to let water through under the higher pressures induced by extreme weather if the rubberizing does not completely close the pores or if the seams are not heavily enough cemented.

What then, may be asked, is the good of a water-proofing process of a fabric if it is not impervious under all conditions?

We reply that without altering the appearance or adaptability of most textile fabrics we can impregnate the fibers with substances which make them quite difficult to wet and when wet, dry out very quickly owing to the lack of thorough wetting through of the fibers under ordinary adverse weather conditions.

This resistance to wetting is not all the effect that can be produced by this means, for with a fabric of suitable character a considerable resistance to the penetration of water can be procured. If the fabric is of the right kind and the water-resistance effectual, a garment may be made of it which will keep out rain to a very considerable degree. If the water-resistant fabric is of open weave, the pressure of a raindrop may cause it to go right through, but the fabric itself will not become wet either immediately or readily. To wet the fabric the tiny pores of the fibers themselves have to be penetrated, and this requires greater force than the mere pressure of ordinary rain drops. Open-weave fabrics of this sort can be produced which can be thoroughly wetted only by applying repeated blows to water laid on the surface of the fabric or by dabbing repeatedly with a wet object.

We know by the experience of many not strictly comparative wearing tests that this resistance to wetting increases the life of the fabric considerably and we are at present conducting series of wearing tests to demonstrate this beyond doubt and to arrive with some degree of accuracy at the extent of the increased wearing quality. We have a number of woolen suits, some untreated and others made water-resistant, undergoing a comparative test in ordinary wear, and the Quartermaster's Office of the War Department has given instructions for a comparative test of wool uniforms and overcoats. This latter is to be done by clothing a platoon of men with water-resisting coats and uniforms and another with garments made of the same cloth untreated.

Apart from our experiences of a number of years, the theory of the lengthened life of the treated fabric is that the wool fiber on becoming wet changed its curl and on drying again resumed to a great extent its former state. This causes a movement in the fabric and a loosening of the yarns which tends to weaken their resistance to friction, for it is common knowledge that a tightly twisted yarn wears better than one of looser character.

We have made numerous tests of the reduction in the absorption power of wool and cotton by exposing samples to a shower with a thirty-foot drop, hanging to drain and observing the increased weight and then the rate of drying. The following figures give some of the results obtained on wool fabrics. The drying referred to consisted of hanging for one hour in a warm room:

1. A heavy mackinaw cloth untreated under a very heavy test absorbed 141 per cent water against 25 per cent and after drying contained 101 per cent against 9 per cent treated.
2. A heavy army overcoating under a light test absorbed 38 per cent of water against 15 per cent treated and after drying contained 12 per cent against 3 per cent treated.
3. A thick grey all-wool flannel under a heavy test absorbed 140 per cent against 60 per cent treated and after drying contained 104 per cent against 32 per cent treated.

We estimate from these observations that a soldier caught in a winter downpour of rain is soon carrying about with him in his overcoat no less than 7 pounds of water, whereas if the fabric is made water-resistant the most he is likely to carry is 3 pounds and it is obvious that this saving of weight means a great deal when on the march.

The processes through which fabrics are put to make them water-resistant are not expensive. They add less than 1 per cent to the cost of a garment and even if they increase the life of the garment only 10 per cent, there is a very obvious saving.

The object of the water-resister as distinguished from the water-proofer is to impregnate the fabric and the fiber of the fabric with a water-resisting substance, taking care that the substance has as high a melting point as possible in order to avoid the shifting of the protecting body under the influence of the sun. It is also necessary, and quite an expert task, to eliminate from the fabric beforehand any substance which might mix with the water-resisting agent and thus raise its surface tension.

In conversation last evening with a member of your society the point was brought out by him that if all the American army uniforms had been made water-resistant, many a case of pneumonia among the soldiers might have been avoided. While this may be somewhat exaggerated, it is, nevertheless, certain that to make it much less easy for a uniform to get wet and much easier for it to dry when wet, is to contribute to the health and efficiency of the soldier.

We submit therefore that it is in the interest both of military economy and efficiency and of the conservation of wool, for every yard of wool fabric made up into every kind of garment during the war to be subjected to a thorough and expert water-resisting process and we shall be grateful for any assistance which will enable us to secure action in this direction from the responsible authorities.

Finally, we may say that our company is willing to cooperate with the government in every possible way with this end in view.

### PACK-CARRYING MADE EASY.

The soldier's pack is his most constant companion. It supplies the necessities of life, viewed from the frugal army standpoint; and in time Sammy, or Tommy, or Jacques, as the case may be, becomes more or less accustomed to its weight. One unavoidable discomfort, however, experienced by even the seasoned veteran, is the incessant jolting of his equipment which is apt to display an unwelcome agility on a brisk march. The pneumatic shock absorbers here shown have been recently invented as a solution of this difficulty. These three rubber air cushions are sewed into the soldier's uniform, one on each shoulder and a larger one just above the belt in the back. When the pack has been adjusted in the usual way, the pads are inflated through connecting tubes with check valves and ending at the front in a mouthpiece. The two ends of the mouthpiece are then fastened together; when unfastened, preparatory to taking off the pack, the pads become deflated automatically. Corrugations on the under side of the cushions allow for the circulation of cool air, in order that the heat of the pack may not be an additional discomfort in warm weather. [James A. Pugh, Cardiff, Wales.]

## THE GOODYEAR ANNUAL MEETING.

THE annual meeting of the Goodyear Tire & Rubber Co., Akron, Ohio, developed the fact that the business of the past year was the most successful, in volume and profits, in the history of the company. Gross sales jumped from $63,000,000 to $111,000,000 and net profits from $7,003,330.09 to $14,044,206.10—an increase of 74 per cent in volume and 100 per cent in profits. Of this volume less than one per cent was contributed by direct war business. The earnings, subject to deductions for federal tax, amount to 61½ per cent of the common stock—the highest record yet made.

President F. A. Seiberling, in his report to stockholders, stated that plant extensions under construction a year ago had been completed, nearly doubling the productive capacity, and providing facilities for several years to come.

"To provide for these extensions," he said, "the directors during the year increased the fixed capital of the company by the sale of $7,500,000 preferred stock and $3,372,000 common stock. The company's good will, growing out of satisfactory trade relations with over 70,000 customers and more than a million users of its products, is steadily increasing in value and constitutes its most valuable asset, though not listed in our balance sheet. And the patents, trade-marks, designs, etc., although worth millions of dollars to us, are listed on our statement at but $1.00."

BALANCE SHEET AS OF OCTOBER 31, 1917.

ASSETS.

| | | |
|---|---|---|
| Plant, as per books: | | |
| Real estate and buildings | $14,125,497.83 | |
| Machinery and fixtures | 10,817,292.40 | |
| | | $24,942,790.23 |
| Patents, trade-marks, designs | | 1.00 |
| Securities owned—book values | | 1,706,425.69 |
| Preferred stock, purchased and held in treasury (187 shares, par value $18,700.00) | | 18,700.00 |
| Notes receivable of officers and employees for capital stock, secured by such stock to the par value of $1,371,700.00 | | 1,033,640.44 |
| Inventory and current assets: | | |
| Inventory | $28,495,623.85 | |
| Accounts and notes receivable (provision in reserve for doubtful items $531,445.30—see contra) | 16,384,333.26 | |
| Advances to agents, salesmen and companies | 2,390,344.99 | |
| Cash on deposit and on hand | 3,783,353.83 | |
| | | 51,053,655.93 |
| Advances to the Goodyear Improvement Company and to the Goodyear Heights Realty Company | | 2,827,872.20 |
| Suspended assets (provision in reserve for doubtful items $175,586.57—see contra) | | 175,586.57 |
| Prepaid rentals, interest, insurance, etc | | 803,919.48 |
| | | $82,562,591.54 |

CAPITAL AND LIABILITIES.

| | | |
|---|---|---|
| Capital stock (par value $100.00 per share): | | |
| Preferred (7 per cent cumulative) originally authorized $25,000,000, issued | $25,000,000.00 | |
| Less—redeemed | 606,300.00 | |
| | 24,393,700.00 | |
| Common, authorized $25,000,000; issued | 20,278,620.00 | |
| | | 44,672,320.00 |
| Current liabilities: | | |
| Notes payable | 15,410,800.00 | |
| Purchase accounts payable | 4,864,761.46 | |
| Sundry other accounts payable | 850,967.80 | |
| | | 21,126,529.26 |
| Reserves: | | |
| For doubtful accounts (current)—see contra | 531,445.30 | |
| For doubtful accounts (suspended assets)—see contra | 175,586.57 | |
| For insurance on branch stocks | 45,000.00 | |
| For depreciation of plant | 3,248,029.53 | |
| | | 4,000,061.40 |
| Surplus, subject to Federal taxes for the year | | 12,763,680.88 |
| | | $82,562,591.54 |

NOTE.—Subject to contingent liability for notes receivable discounted, amounting to $4,084,900.75 and guarantee of loans made by Canadian bankers to The Goodyear Tire & Rubber Co. of Canada, Limited, amounting to $300,000.

The report further states: "We have been cooperating closely with the Government in supplying what needs we could, because we felt that it was our duty to measure up to our opportunities in this respect, and we are going to support the Government's program in the rubber line to our limit."

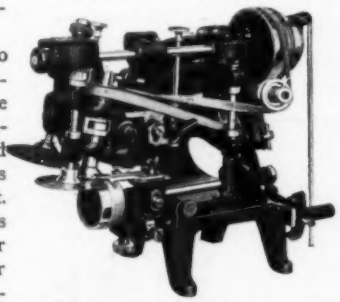
All of the directors were reelected, as follows: F. A. Seiberling, C. W. Seiberling, G. M. Stadelman, F. H. Adams, P. W. Litchfield, H. B. Manton and J. P. Loomis. The directors in turn elected the following officers: F. A. Seiberling, president and general manager; C. W. Seiberling, vice-president and manager of purchases; G. M. Stadelman, vice-president and manager of sales; P. W. Litchfield, vice-president and factory manager; A. F. Osterloh, secretary; W. E. Palmer, treasurer and assistant secretary; H. J. Blackburn, second assistant treasurer.

But one change was made in the list of officers—the election of W. E. Palmer, as treasurer, succeeding F. H. Adams, who retires from that office, although retaining his membership on the board of directors. The election of Mr. Palmer brings to the treasurer's office an employe whose connection with the company covers almost the entire period of Goodyear history, for he has advanced from a $50-a-month clerkship by sheer merit—without a pull, other than that of hard work and real ability. As secretary to the board of directors ever since its organization, he has handled practically every big financial matter that the company has transacted.

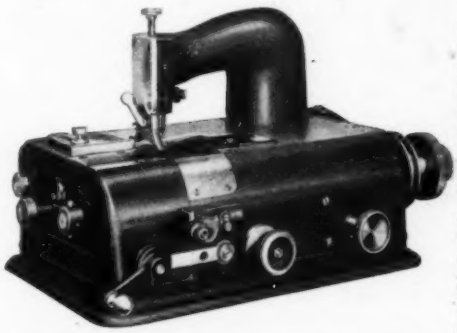
# New Machines and Appliances.

### TWO IMPROVED SKIVING MACHINES.

SKIVING machines are invaluable adjuncts in the manufacture of certain rubber goods, and makers of this type of machinery are constantly striving to improve their product to meet the requirements of the progressive rubber industry.



Here are shown two types of an improved skiving machine that may be used for skiving either uncured or cured rubber, and producing a superior class of work at a minimum cost. The Amazeen machine is adapted for skiving rubber soles, taps, counters or inner soles with either a flat, concave or convex bevel. Any width of scarf, from the narrowest edge up to 5/8 of an inch may be obtained on this machine.



The Pluma machine is specially designed for making joints or laps in edging automobile tires, tire tubes, or mats and may be adjusted to produce any width of scarf, up to 2¼ inches wide. It is also adapted for beveling the edge of patches or in repairing automobile tires when such work is required. [United Shoe Machinery Corp., Albany Building, Boston, Massachusetts.]

### MACHINE FOR TESTING WEARING QUALITY OF SOLES.

A machine for testing the wearing qualities of sole leather and also for making comparative tests of composition soles has been devised by the Bureau of Standards, Washington, District of Columbia. The machine is still in the experimental stage, but the results obtained indicate that it will prove adaptable for testing soling materials in general.

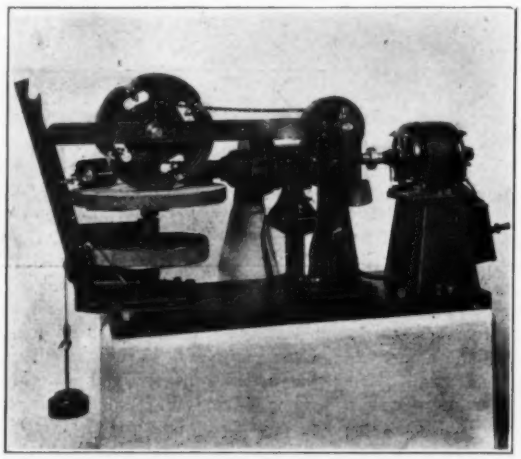


FIG. 1.—FOUR-PIECE SOLE TESTING MACHINE.

The machine is adapted to test four or twelve test-pieces by the use of two carrying wheels. The one shown in Fig. 1 is a cam about 11 inches in diameter, of clover-leaf shape, that carries on its face four test pieces. In place of this cam a wheel of 15 inches diameter may be used, carrying on its face twelve test pieces as shown in Fig. 2. The cam or wheel makes 30 revolutions per minute on a horizontal axis supported in bearings between two parallel metal bars which are pivoted at one end, the other end being free. The cam or wheel carrying the weight of the bars—and any additional weight that may be suspended from their free end, rests on a horizontal disc 16 inches in diameter, the point of contact being 5½ inches from the axis of the disk. This disk has a surface of carborundum and rotates about a vertical axis provided with a brake wheel, by means of which any desired resistance to rotation may be secured by the application of dead weights. The cam is driven by a chain, which in turn drives the horizontal disk with which the test pieces are in contact.

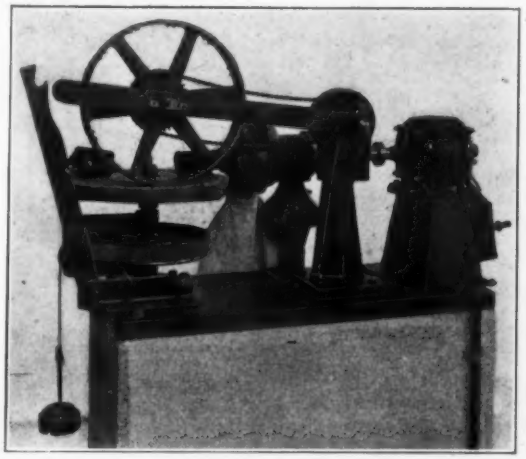


FIG. 2.—TWELVE-PIECE SOLE TESTING MACHINE.

The apparatus is designed with the view of subjecting the test pieces to (1) a moderate impact against the wearing surface of the disk, if the clover-leaf cam is used as shown in Fig. 1, (2) a driving, shearing action under pressure and (3) a slight abrasive action resulting from the circular path of contact between the cam and disk. The conditions of pressure and shear may be adjusted as desired and the test may be made with the leather either dry or wet. A circular brush rests on the carborundum disk, and in connection with a small exhauster keeps the surface of the wearing disk clean.

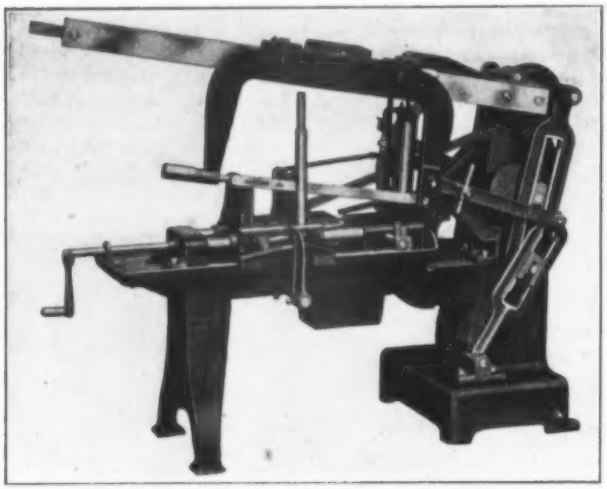
### ATKINS' KWIK KUT HACK SAW MACHINE.

While this machine has, no doubt, a greater field of usefulness in the machine shop or tool room of a rubber mill, yet it is well adapted for other purposes of equal importance in rubber manufacture, for instance, in cutting sample sections of a vulcanized solid tire and rim for laboratory or commercial purposes. This machine is also useful for cutting sections of pneumatic tire rims and cross-sections of metal-inserted mechanical rubber goods for purposes of verification.

Rapid cutting and economy in the use of blades are obtained

by a patented movement whereby the length of the stroke is automatically regulated by the size of the material being cut. Moreover, the saw is lifted on the return stroke by a special device and accuracy in cutting is insured by a perfected saw guide.

The machine is stopped automatically at any depth in cut and also when the cut has been completed. Eighteen-inch blades



are used and the stroke of the saw arm is varied from 50 to 80 per minute by a two-speed pulley. Capacity of the solid vise is 8 by 8 inches, while that of the swivel vise when cutting straight is 7 by 8 inches, but when cutting 45-degree angles it is 4½ by 8 inches. The floor space occupied is 18 by 40 inches and the shipping weight 700 pounds. [Purinton & Smith, 31-41 Edwards street, Hartford, Connecticut.]

### A FOOL-PROOF SAFETY-FIRST SWITCH.

The accompanying illustration of the new switch shows not only the exterior protective casing, which is of sheet metal, but also reproduces in phantom the working parts and the slate base. It is obvious that the padlock at the bottom prevents outsiders from bothering with the fuses in the lower part of the switchbox. If the hinged casing is also carefully observed it will be evident that the switching lever at the upper right-hand side cannot be closed while the covering over the fuses is open, and vice versa.

It was at first thought that this interlocking arrangement would give sufficient protection but several new conditions have gradually come to light. For instance, where two or three operators are involved it has been observed that although one of them may throw on the switch with perfect safety he may at the same time endanger another operator working on a machine whose motor gets its current through the switch. To meet this condition three locks, each controlled by a different individual, may be used and all operators kept thoroughly in touch with what is going on. By special order these switches will also be provided with spring catches which must be pressed down while the switching lever is moved. Both hands are thus required to switch the electricity on or off and further safety is achieved. (General Electric Co., Schenectady, New York.)

### THE MALM GASKET TRIMMER.

The machine shown in the accompanying illustration has been developed for rapidly and cleanly trimming the inside and outside overflow from gaskets and washers. By means of simple adjustment and special tools it will trim, in one operation, air-brake gaskets and similar washers or gaskets up to 6 inches outside diameter.

The machine is built on the lines of a speed lathe, the head-stock being cast solid with the bed and equipped with taper bronze-ring oiled bearings. The trimming operation is semi-automatic and all danger to the operator is eliminated. The equipment includes trimming tools for one style of gasket, automatic counter, counter-shaft and wrenches. Width of the head-stock driving belt is 1½ inches; counter-shaft speed 300 r. p. m.; size of counter-shaft tight and loose pulley, 2½ by 5 inches; approximate shipping weight, 420 pounds. [The Malm Machine Co., Dayton, Ohio.]

### THE GANT MEASURING METER.

This little device, adaptable for measuring insulated wire, garden hose, and also brake lining of any thickness up to 3½ inches in width, is of particular interest to retailers of these goods. The yardstick and tape measure are of no further use when this machine is installed. Its operation is extremely simple. The material to be measured is threaded through the device and allowed to project 6 inches when the meter is set to zero by means of the hand knob. The material is then pulled through the meter until the dial registers the amount of material required, when it is cut off at the same distance from the machine as the end was at the start, namely, 6 inches. [The E. M. Gant Manufacturing Co., Inc., Ethridge, Tennessee.]

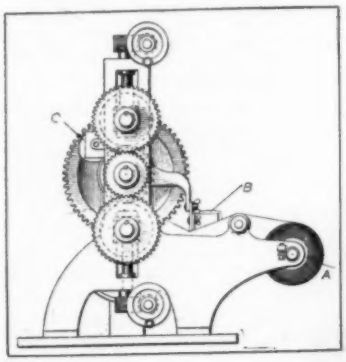
"Rubber Machinery," Mr. Pearson's newest book, filled with valuable information for rubber manufacturers, is now ready for mailing. Price, $6.

## MACHINERY PATENTS.

### MAKING ARTIFICIAL LEATHER.

IN this process the ordinary type of friction calender is used and provided with a device for applying a cementing coating to the fabric prior to the calendering operation.

It has been demonstrated that in applying plastic coatings to fabrics by calendering, efficient anchorage of the coating is obtained by first applying a moist, sticky cementing coating and then applying the final coating before the cement has had time to dry and harden.

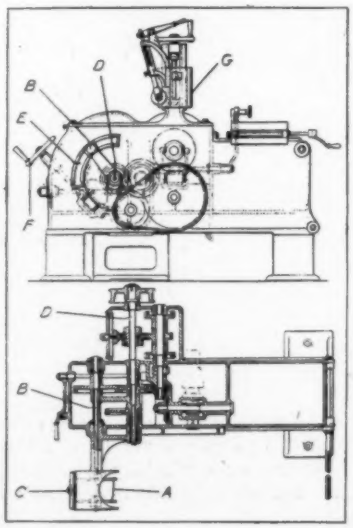



Referring to the illustration that shows a side elevation of the machine, the fabric is passed from roll *A*, under the spreading device *B*, which applies a coating of cement to the fabric as it passes between the lower and middle rolls of the calender. Here it receives a coating of plastic material that is fed to the calender in the usual way at *C*. The first coating, being moist and sticky, penetrates the fabric and, furthermore, causes the second coating to adhere firmly to the first. [Charles E. Arnold, assignor to E. I. du Pont de Nemours Powder Co., both of Wilmington, Delaware. United States patent No. 1,247,610.]

### TIRE BUILDING MACHINE.

The illustration shows a side elevation and sectional plan view of a recently patented English tire building machine.

The fabric strips are shaped to the core by a plurality of rollers, mounted on two disks, shown at *A* in the plan view, which are mechanically driven in a direction opposite to that of the revolving core. The disks are pressed towards the core by two springs arranged on the disk shaft *B*, but may be retracted by a hand-operated cam *C*.




The disk shaft *B* is geared to the main shaft *D* and is carried in two bearings which are adjusted in the slot *E*, in relation to the tire core, by the quadrant worm gearing and hand wheel *F*. The tread is applied to the casing by the spring-operated profiled rollers carried by a vertically adjusted slide G. [F. H. Mercer, H. F. H. Blease and Avon India Rubber Co., Melksham, Wiltshire, England. British patent No. 109,892.]

## OTHER MACHINERY PATENTS.

### THE UNITED STATES.

1,246,260. Tire wrapping machine. J. O. Goodwin, Akron, Ohio.
1,246,387. Repair vulcanizer. R. C. Boldry, assignor to H. E. Davis—both of Oskaloosa, Iowa.
1,246,488. Tread applying machine. J. L. Swartz, Akron, Ohio.
1,246,832. Tire wrapping device. N. Ahrbin, Chicago, Ill.
1,246,925. Gasket cutter. H. A. Hunt, Mohawk, N. Y.
1,247,434. Tire core. E. M. McCurry, Columbiana, Ohio.
1,247,780. Skiving machine. A. M. Alexander, Beverly, Mass., assignor to United Shoe Machinery Co., Paterson, N. J.

### THE UNITED KINGDOM.

109,624. Molding wheel tires. Michelin et Cie. (Soc. en Commandite par actions), Clermont-Ferrand, France, assignees of J. H. Michelin, New Brunswick, N. J., U. S. A.
109,833. Device for drawing lines on rubber trees and other irregular objects. H. Wade, 111 Hatton Garden, London.
109,906. Vulcanizing rubber. Société pour la Production et la Vente des Articles en Caoutchouc "Bogatyr," and J. A. Talalay—both of Bogatyr, Moscow, Russia.

### THE FRENCH REPUBLIC.

484,118. (January 9, 1917.) Necessity case, adaptable for use as a press in repairing pneumatic tires. A. J. Bert.
484,245. (January 15, 1917.) Process and apparatus for vulcanizing rubber. W. B. Burke.
484,326. (January 25, 1917.) Improvements in the means for tire-repair vulcanizing. The Marvel Necessaries Manufacturing Co.
484,327. (January 25,1917.) Improvements in the apparatus used for tire-repair vulcanizing. The Marvel Necessaries Manufacturing Co.

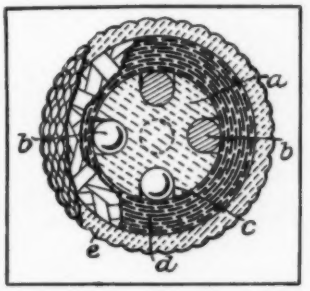
### INDIA.

2,988 (March 22, 1917). Improved machine for washing and disintegrating raw rubber and materials containing rubber, etc. United Engineers, Limited.
3,020 (April 17, 1917). Apparatus to indicate the rate of bark consumption in tapping rubber trees. S. A. Alexander.

## MISCELLANEOUS PATENTS.

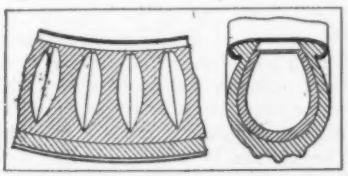
### GOLF BALL.

This invention relates to the cores of golf balls and is shown in the accompanying illustration. The core *a* of a golf ball is provided with a series of equally-spaced recesses *b* in which are placed weights *c*. The ball is completed with the usual winding *d* and cover *e*. [P. A. Martin, Granville street, and J. Stanley, 70 Ivor road, Sparkhill, both in Birmingham. British patent No. 109,374.]




### A FRENCH AIR-LESS INNER TUBE.

This is an endless band of rubber intended to replace the inner tube of an ordinary pneumatic tire. It is constructed with transverse, lenticular openings arranged at spaced intervals proportionate to the dimensions of the casing it is intended to occupy. Elasticity is increased by the space provided between the inner circumference of the rubber band and the outer circumference of rim, thus allowing a free circulation of air that prevents heating and absorbs shocks.



The band is molded in two annular parts that are first lightly vulcanized and finally joined by pressure, either in the casing or in a mold. In the latter case the application of heat and pressure is employed in the usual manner and the tube is ready for insertion in the casing. [M. R. Ducos. French patent No. 483,862.]

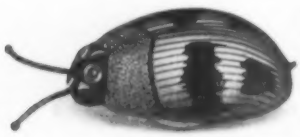
### MEXICO.

The declared exports of crude rubber from the San Luis Potosi consular district to the United States during the first nine months of 1917 amounted to $154,727. The value of the chicle exports to this country was $18,227.

# New Goods and Specialties.

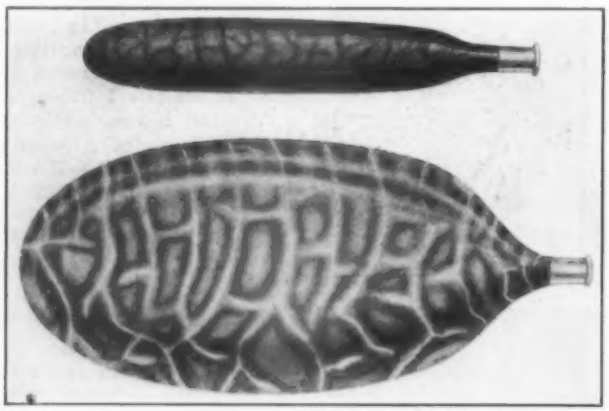
### MECHANICAL INSECT TOYS.

A LINE of mechanical crawling bugs has been placed on the market that includes the lady bug, the Brazilian bug, the asparagus bug, the Mexican beetle, the cucumber bug and the potato bug. These creatures are of metal, painted in realistic colors, and have rubber antennae which vibrate most naturally when the bugs move, which they are enabled to do by means of a simple little mechanism underneath which is self-winding and requires no key or separate winder. In addition to the fun which may be had from the antics of one bug alone, games have been devised using the different ones in combination with miniature ten-pins, footballs, cardboard vehicles, etc. (John Wanamaker, New York City.)



### ALLIGATOR-HIDE BALLOONS OF RUBBER.

A manufacturer of toy balloons, to attract the eye of the youngster at country fairs and on other holiday occasions, when the slightest excuse is given for the selling and buying of these devices that give color to a crowd and add to the festive effect, has developed what is known as an "alligator-hide" balloon. It is of white rubber, dipped in red coloring, on the sort of form which is generally used in the manufacture of dipped rubber goods and which gives it a surface of irregularly spaced, raised and depressed portions, the raised ones taking up the coloring matter and the depressed ones remaining white, so that when inflated the white depressions produce the "alligator-hide" markings. The balloon is of the familiar type inflated and collapsed at will by means of an end mouthpiece. (The Brazil Novelty Manufacturing Co., 1710-11 Ella street, Cincinnati, Ohio.)



### WATERPROOF ARMY AND NAVY CHECKERS.

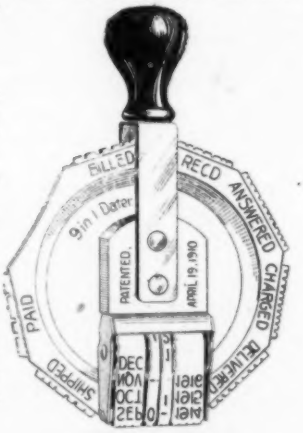
Another device, similar to the rubber checkerboard elsewhere illustrated, but worked out in much cheaper materials, consists of a rubberized cloth checkerboard, for which a patent has been applied. The checkers consist of circular pieces of red and white celluloid, having a round hole punched through the center, through which a brass paper-fastener is inserted to fasten them to one corner of the checkerboard when the game is folded up to put in the soldier or sailor's pocket. (F. W. Woolworth Five- and Ten-Cent Stores, New York City.)

### THE "KLAYTONKOTE," A NEW RUBBER COAT.

A new model of the "Raynster" rainproof coat is shown in the accompanying illustration, called the "Klaytonkote." It combines in one garment a weather coat and an overcoat, and it is made from carefully selected woolens, tweeds and fancy mixtures, double textures with blending linings and with soft and pliable inner proofings of rubber. Every "Klaytonkote" bears a "Raynster" silk label. This coat may be obtained for men, women, boys and girls. [United States Rubber Co., Clothing Division, Boston, Massachusetts.]

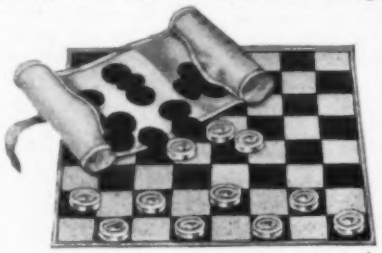
### NINE RUBBER STAMPS IN ONE.

The clerk who has been accustomed to a rack filled with a varied assortment of rubber stamps will appreciate the new 9-in-1 dater. This patented device consists of a dating stamp much like the ordinary kind, with the addition of a revolving wheel which has nine faces, on eight of which are glued rubber dies providing, in addition to the date, the words "paid," "charged," "received," "delivered," "entered," "answered," "billed," and "shipped." The ninth face is left blank by the manufacturer and provides for the addition of any extra word which the user may require. The 9-face wheel is turned to the desired word and locked in position with the date. [Horace E. Fine Co., 19 East State street, Trenton, New Jersey.]




### A RUBBER CHECKERBOARD FOR "OUR BOYS."

The enterprising manufacturers of games are turning their attention to providing amusement for our soldiers and sailors in their moments of leisure and among the newest devices is a checkerboard of rubber, which may be rolled up to occupy a very small space. The accompanying checkers fit into a separate rolling case of khaki which ties. (John Wanamaker, New York City.)



### THE "BIKE" ELASTIC SWEAT BAND.

This band differs from the ordinary article in that a visor is attached to protect the eyes from the sun. The band is made of Egyptian thread, interwoven with rubber-covered thread, and in addition to its main function of absorbing all perspiration, it also keeps the hair in place. Participants in outdoor sports, and tennis enthusiasts in particular, will find this article useful. [Sharp & Smith, 155-157 North Michigan Boulevard, Chicago, Illinois.]

### RUBBER-WHEELED "FIRESIDE COMFORT."

A device to convert a stationary chair into a movable one consists of a small truck having bicycle ball-bearing wheels with wired-on one-inch cushion rubber tires and the foot rest or front platform covered with corrugated rubber. There are clamps on the rear platform for locking the rear chair legs securely in place. (The Worthington Co., Elyria, Ohio.)

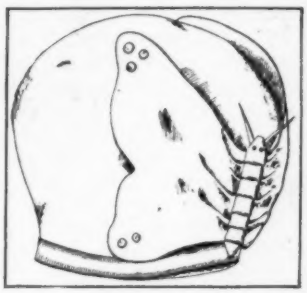
### AERIAL FOOTBALL.

A somewhat novel adaptation of football and basket-ball for an indoor game is the subject of a recent British patent. An ordinary inflated toy air-ball six or eight inches in diameter is

used, and the goals are supported on galvanized rods, which, being telescopic, allow adjustment to any desired height. The game is played by the contestants seated around a table, and the rules are such as to combine the games of football and basket-ball. The game has become quite popular among convalescents in the British military hospitals. [T. H. Prosser & Sons, 546 Holloway road, London, N., England.]

### A NEW STYLE OF BATHING CAP.

This creation for the summer girl has an appropriate butterfly design. The large white rubber wings with dark spots at the tips contrast effectively with the main part of the cap, which is of red, blue or black rubber, as the case may be, the body of the butterfly being of the same shade, with two dark spots for eyes. The cap fits closely to the head and has a wide white band which makes a frame becoming to the wearer's face. This design comes in a number of shades to harmonize with different costumes, and very striking color effects may be secured. [Revere Rubber Co., Providence, Rhode Island.]



### SAFETY DEVICE FOR AUTOMOBILES.

A life-saving device to be attached to automobiles consists of a double fender, the bars of which are surrounded or padded by

pneumatic tubes. The sections meet at a point a few feet in front of the radiator hood. The arms are released automatically on coming in contact with an obstacle, and powerful springs push such obstacle out of the path of the machine. At a trial given in San Francisco, the contrivance proved its efficiency to the satisfaction of supervisors and police officials. The fender, if such it may be called, can be raised so as to take up less space in the garage. [Y. M. Crichrion, Monterey, California.]

### THE "REX" GASOLINE HOSE.

This hose has an inner tube of asbestos-packed steel, covered with a coating of gasoline-proof rubber, which is surmounted with a woven cotton jacket. The couplings are of the compression type and cannot leak or pull off. They are also designed to permit a full flow of gasoline without any back pressure to pump. Packless "anti-drip" nozzles are also a feature of the hose. (The Chicago Tubing & Braiding Co., 216-224 North Clinton street, Chicago, Illinois.)

### NEW STYLE IN RUBBER SOLED CANVAS SHOES.

A handsome style of canvas rubber soled footwear, denominated "The Sport Shoe," is claimed to be one of the most comfortable summer shoes made, as the sole and heel, which are sponge rubber, produced by a patented process, serve as pneumatic cushions when walking or standing. The combination of elastic rubber and confined air makes this most effective, and when to this are added grace and style, the line is an attractive one. [Canadian Consolidated Rubber Co., Limited, Montreal, Canada.]

### RUBBER "GASTIGHT" GOGGLES.

These goggles, designed for use in atmospheres laden with poisonous gases or fumes, are made of Para rubber and are held in place by an elastic headband. As the surrounding framework is anatomically correct, it adheres closely to the eye sockets, thus excluding the entrance of any harmful vapors. The goggles have large curved lenses and are absolutely air-tight, being extensively used in connection with respirators. The "safety" type is provided with isinglass guards behind each lens to prevent eye injury should the glass be shattered by accident. [S. F. Hayward & Co., 250 West Fifty-fourth street, New York City.]

### RUBBER DOLLS AND ANIMALS.

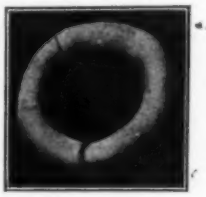
Time was when a large proportion of the toys used by American children were "Made in Germany." But during the past three years the toy industry in all its branches has become firmly established in America. Dolls, animals, balls and balloons of rubber are being brought out in such variety that the domestic product will henceforth meet every requirement of the trade. The lifelike doll and animal figures here shown were selected from a line of many varieties that would fill any childish heart with glee. All represent new and original designs, which are either patented or have patents pending. They are durably made from good quality, time-tested stocks in red and other colors, and will resist innumerable falls, thumps and chewings. (The Faultless Rubber Co., Ashland, Ohio.)

### THE "KANTEEN POUCH" FOR SERVICE.

A new trade-marked "Kanteen Pouch," for convenience in carrying and keeping tobacco dry, is offered for the comfort of our soldiers and sailors who smoke. It folds flat when not in use and is provided with a stout cord pulling easily within an applied stitched casing, to draw up the opening to make it tight. This pouch comes in a marbled effect which is particularly striking in black and white and gray and in black and white and red. [William Demuth & Co., New York.]

### LIFE SAVERS FROM INNER TUBES.

In these days of conservation many schemes are evolved to utilize waste products. Suggestions have appeared in contemporary print to use inner tubes as life preservers, but it is hardly likely that any persons will deliberately purchase inner tubes for such purpose.



However, it remained for a scout-master to make from a damaged and discarded inner tube an efficient life-saving device. From the undamaged part of the tube enough is cut off to make a ring about 15 inches in diameter, this piece, of course, including the valve. The ends are vulvanized together, and a cover of khaki is laced about it as a protector and to prevent over-expansion. Such a contrivance can be easily carried in a collapsed state and quickly inflated for use with an air pump to be ready for emergencies.

MORE AMERICAN-MADE TOYS.

# The Editor's Book Table.

THEORETICAL AND APPLIED COLLOIDAL CHEMISTRY. BY DR. Wolfgang Ostwald. Translated by Dr. Martin Fischer. First edition. John Wiley & Sons, New York City, 1917. [xiv+232 pages, 6 x 9, 45 figures. Price, cloth, $2.50 net.]

"THIS volume, comprising a series of five lectures delivered by the author during the winter of 1913-14 in a number of American universities, makes its first appeal to such readers as have heard little or nothing of colloidal chemistry." (Preface.) The successive lectures treat on the fundamental properties of the colloidal state with methods of preparing colloidal solutions; classification of colloids, physico-chemical properties; changes in state; and scientific and technical applications of colloidal chemistry.

With the lectures are printed descriptive foot-notes of experimental demonstrations used in illustration. The author has made very clear the nature of colloids and the great variety and importance of colloidal chemistry and its application in the fields of science and technology.

Naturally the technical applications of the near science are of great practical interest, even the enumeration of them is startling as we realize the truth of the author's statement, "It is simply a fact that *colloids constitute the most universal and the commonest of all the things we know.*" The manufacture of rubber represents a typical colloidal industry, which is briefly treated as regards the coagulation of rubber latex, the solution and vulcanization of rubber and the production of synthetic rubber.

The volume is a valuable aid to the appreciation of the significant bearing of colloidal chemistry on the common experiences of life as well as in the realms of science and technology. The untechnical form in which the subject is presented makes a clear conception of colloids possible even to the unscientific reader.

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COTTON FACTS, EDITED BY CARL GELLER. SHEPPERSON PUBlishing Co., New York City. [240 pages, 16 mo, cloth. Price, $1.]

The present volume is the forty-second annual edition of this compact but comprehensive publication, which is a compilation from official and reliable sources of the crops, receipts, exports, stocks of cotton, the home and foreign consumption, visible supply, acreage, etc., as well as government crop reports, cotton mill statistics and other information regarding this important product. The review of the cotton season of 1916-17 and the prospects for the coming season are carefully written, covering the American and foreign markets, and the outlook for the American, Egyptian, East Indian, Russian, Peruvian and Chinese plantings. As a handbook for quick reference this little volume maintains the well-earned prestige of its predecessors.

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FIRST ANNUAL REPORT OF THE UNITED STATES TARIFF Commission, for the Fiscal Year Ended June 30, 1917. Washington, District of Columbia. [26 pages.]

The activities of the first year of this important commission form interesting reading for the business man. There are few questions of more importance to manufacturers than cost of material, and with many materials, the existence or non-existence of an import tariff means the difference between a prosperous and a losing business. The commission has undertaken to establish a catalog of tariff information, in the nature of an encyclopaedia with full data and statistics. It is making a special survey of the chemical industry, to provide Congress with information for legislative readjustment to peace conditions. It is investigating the question of free zones in ports, as a means of expediting export trade and overcoming demurrage in ocean commerce, and will provide facts upon which Congress may found a method for using the bargaining power in American tariffs which have been so favorably applied by European powers in the past.

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RUBBER CULTIVATION IN TRINIDAD AND TOBAGO. REPORT of the Special Committee of the Board of Agriculture, reprinted from the Builetin of the Department of Agriculture, Trinidad and Tobago. XVI, 1917, 95-152. [Paper cover, 57 pages.]

On April 19, 1916, a committee was appointed to investigate and to report upon the present position and prospects of rubber cultivation in Trinidad and Tobago, and to suggest means for introducing the best methods of tapping and preparing rubber on the plantations. A number of estates were visited and from 52 out of 155 others, written information was obtained. The report of this undertaking includes a brief history of rubber cultivation in these islands, methods in use at present, the profit per acre as stated by two of the most important estates, and a comparison of the respective advantages of *Hevea, Castilloa* and *Funtumia.*

On the 52 estates that submitted information to the committee, there are altogether about 250,000 trees, of which 130,593 are *Hevea* trees, 81,975 *Castilloa,* and 45,000 *Funtumia.* Figures from 103 estates, which did not give details to the committee, would certainly raise these totals very considerably.

Lack of perseverance on the part of the planters is responsible for the fact that, excepting in Manzanilla, no headway has been made. Most rubber areas have been neglected and present a very poor appearance, but since much capital has been sunk in various districts, the great problem is the possibility of realizing any returns on capital invested.

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THE WAR REVENUE LAW OF 1917. DISTRICT OF COLUMBIA. The Publicity Corporation, Washington. [96 pages, narrow 8vo, paper covers, 50 cents.]

The many complexities and the multitude of questions that present themselves to the business man in regard to present-day government taxes make this little publication one of much value. The law is given in full, as is also an exposition or analysis of the act, tables illustrating graphically its application to various cases, and an explanation of the relation of pre-existing laws to the present act. There is an index which enables quick reference to each section. The book appears to have been prepared with care and judgment and should be of great assistance in studying the effect of the law and in determining the amount of tax due the government in any individual case.

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APPLIED MOTION STUDY, THE EFFICIENT METHOD TO INDUStrial Preparedness, by Frank B. and L. M. Gilbreth. Sturgis & Walton Co., New York City. [Small 8vo, 220 pages, cloth. Illustrated. Price, $1.50 net.]

Wherever workmen are employed in any kind of manual labor, be that work done with the hands or by machines, the amount and quality of the product are matters of prime importance. Upon the efficiency of the workers may depend not only profit instead of loss, but often the success or failure of the entire business. The best work in the most economical way is the object of the study of motion to which this book is devoted. The elimination of needless motion, the advantage of dexterity and the value of speed are determined by this study, in which novel special devices have been invented to obtain records of fleeting motions, the deductions from the study of these records resolving themselves into concrete practical problems to be worked out in scientific management in the industries. The book is one which may well be studied by every employer of labor in which skill, precision or dexterity is a factor.

## NEW TRADE PUBLICATIONS.

THE Cameron Machine Co., Brooklyn, New York, has issued a well illustrated and finely printed catalogue of its "Type S" series of slitting and rewinding machines which have been found so valuable as to be almost indispensable in cutting fabrics for the manufacture of tires, belting and various other lines in rubber factories. A review of previous methods of slitting fabrics and the advantages of the Cameron machines is followed by excellent half-tones of these machines, together with full descriptions.

* * *

"Westinghouse Direct Current Motors and Generators" is the title of Catalog 30 just published by the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania. It is a fine piece of business typography, replete with illustrations and information regarding motors in general and those of this company in particular. There are several pages devoted to details of the various motors, and much information on such subjects as arc welding, head stock equipment, battery-charging service, etc. The catalog is identical in size with others of the company's line and is designed to fit the binder furnished to customers.

* * *

"Thermoid Automobile Products" is a finely printed, handsomely illustrated pamphlet of 32 pages issued by the Thermoid Rubber Co., Trenton, New Jersey. Its various lines of hose, tubing, brake linings, clutch blocks and discs, automobile casings, tubes and accessories are pictured, described and priced. A bird's-eye view of the extensive plant embellishes the title page, and the covers are of bright red-orange with the company's monogram on the back and an automobile on the front.

* * *

E. I. Du Pont de Nemours & Co., Wilmington, Delaware, and its associates, Du Pont Fabrikoid Co., Du Pont Chemical Works, Arlington Works, and Harrisons, Inc., have published a compact little volume of 190 pages, giving a list of the products of all the concerns and describing their uses. It may be remembered that one of the allied concerns purchased the plant of the Fairfield Rubber Co. and in that plant is now making Fairfield rubber cloth for automobile covers, and also rubber blankets for hospital and camp use. The Harrisons, Inc., plant is a leading paint, color and chemical concern in Philadelphia, where are manufactured a number of lines of materials used in the manufacture of rubber. The book gives considerable matter of interest regarding all these products, and is handsomely bound in Fabrikoid, one of the leading items of the industry. We understand that it will be sent to any one of our readers who may write for it.

* * *

The Mason Tire & Rubber Co., Kent, Ohio, has published a beautifully printed book of 28 pages in quarto form, telling of its factory and methods, the men in charge and their "messages" to their patrons and how their tires and tubes are made and marketed. The book is profusely illustrated, giving portraits of the officers and heads of departments, views of every portion of the factory, showing work in progress, groups of workmen, pictures of reception rooms, the hospital, the restaurant, and photographs of branch stores in various cities. The book is elaborately gotten up, and is one of which the company may well be proud.

* * *

"Electrical Equipment for Rubber Factories," is the title of an elaborately illustrated publication, with an attractive art cover, just issued by the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania. The advantages of motor drive, particularly for the calender, are explained in some detail and several different motors and controls are shown. The many photographs, taken in different parts of the country, illustrate the application of motors to the rubber industry.

## PLAIN TALK FOR INDUSTRIAL SLACKERS.

THE following statement speaks for itself, and is a document worthy of emulation at a time when maximum effort and thrift are called for on the part of everybody. It is a straight-from-the-shoulder patriotic talk for industrial slackers which the Pennsylvania Rubber Co., Jeannette, Pennsylvania, recently placed in all pay envelopes. The text is so apropos as regards the general labor situation that it is given in full:

We are ardent advocates of the principles of Personal Liberty. We concede to you in the widest scope all the rights contemplated by this doctrine, and likewise, under the same plan reserve equal privileges for ourselves.

The money in this pay envelope is yours.

It is your right to use it as you may see fit.

It may be devoted to the good of your family, if you have one; if not, to your own betterment or the improvement of those who are to any degree dependent upon your efforts or subject to your influence.

Personal Liberty cannot be enjoyed exclusively by any particular class of people. It is founded not on man-made laws, but divine right. The principles of Personal Liberty grant to us all the privileges and benefits that they provide for you. Fairly and properly viewed, Personal Liberty is an incentive to exalted citizenship and leads to harmony and contentment. Interpreted loosely, it becomes a menace.

As construed by some, the principles of Personal Liberty concede to a man the right to stand before a bar and dribble away his money at the expense of his family and his own welfare. As to the correctness of this theory we do not propose to entertain an argument, as it has never been our practice to preach or exhort, and we are not intending at this time to launch upon a campaign of reform. What we have to say is not in the nature of pleading, but rather as a statement for the guidance of some, if they desire to remain in our employ.

After more than seven years' observation we are prepared to say that exceeding 85 per cent of the discontent and trouble which has been generated in this factory in the past can be traced to men who, on account of careless habits, have become discontented with themselves, and who in accordance with the usual practice of this class, have endeavored to spread dissatisfaction, in order that others may share their misery.

Do not think that you can wake up with a headache and wish the consequences and expense upon us, and eliminate at once the idea that you can continue to lay off without cause and retain your position. The "Cramps in the Stomach," excuse is becoming old to a point that it is almost moss-covered, and some have sadly over-played their hand in connection with this particular malady.

Above all, remember that the man who does not take proper care of his family or those who are dependent upon him, cannot remain in the employ of the Pennsylvania Rubber Company.

As the general wage scale prevailing at this plant is higher than in force in any other tire factory in the United States and as we have more applications from sober, industrious, home-loving men than we can take care of, we do not propose to make this institution a haven of rest or recuperating parlor for the grumbling slacker who spends his money up town and then goes home and whines to his wife about the high cost of living.

As a company with a president, vice-president and exceeding 100 men at the front, making the supreme sacrifice, our feelings as to what constitutes patriotism and loyalty are very definite and firm. We shall be in closer touch than ever before with the personnel of our factory and conditions therein. In short, it is our object to convey the idea that we intend to know pretty well what is going on uptown, as well as in the plant. We demand attendance and efficiency in our office and will be satisfied with nothing less in the factory, and we announce the platform upon which we stand in order that any who may desire to work under more liberal conditions may have opportunity to migrate before the extremely cold weather sets in.

While it will be readily manifest to all that this word is intended only for those who need it and that those who need it represent a comparatively small proportion of our enrollment, it is, nevertheless, necessary as affecting the general welfare.

# The Rubber Association to Act as Crude Rubber Consignee.

THE United States Government, through the War Trade Board, has requested The Rubber Association of America, Inc., to act as consignee of importations of crude rubber from foreign countries, to be released only under the conditions set forth in the following paragraphs.

Whenever the words "crude rubber" occur they are to be considered as denoting all varieties of rubber so known in the markets, including gutta jelutong, pontianak and also reclaimed and scrap rubber, gutta percha, and all kindred products, including balata and gutta siak.

Wherever the terms "manufacturer," "dealer," "importer," "reclaimer," or "person" occur, they are understood to mean:

Manufacturer: A person who purchases for his own manufacturing requirements and not for resale.

Dealer: A person who buys from an importer for resale.

Importer: A person who imports for his own account, or acting as agent, either for his own use in manufacture or for sale to either manufacturers, dealers, or other importers.

Reclaimer: A person who by manufacturing processes obtains crude rubber from scrap rubber.

Person: The word "person" shall also include a partnership and corporation unless by the context that meaning is excluded.

The Rubber Association of America, Inc., is undertaking this work at the request also of manufacturers, dealers, importers and reclaimers, who desire to avoid interruptions to their business, and it will be carried out in accordance with the request above mentioned and subject to and in compliance with certain regulations in respect thereto now or hereafter promulgated by the War Trade Board, and also subject to and in compliance with all provisions and agreements set forth and contained in Guarantee and Agreement forms 1 to 4 inclusive.

The Rubber Association of America, Inc., has agreed with the War Trade Board to act for and on behalf of the War Trade Board in carrying out its plan and purposes in such manner as the board may direct and request, and to supervise and keep itself posted as to the conditions in the rubber trade and as to the members thereof with a view to furnishing to the War Trade Board at any time such information as it may desire.

Manufacturers, importers, dealers and reclaimers are required to give through The Rubber Association of America, Inc., to the War Trade Board, certain undertakings required by the board.

For the purpose of facilitating this work, The Rubber Association of America, Inc., has appointed a Committee on Rubber and Kindred Products, which will act in an advisory capacity to the War Trade Board and have charge of these matters on behalf of the association. This committee is composed of the following members:

Charles T. Wilson, chairman; H. Stuart Hotchkiss, B. G. Work, Henry Spadone, William E. Bruyn, George B. Hodgman, W. J. Kelly, E. H. Huxley, H. S. Vorhis, secretary.

All importations of crude rubber from foreign countries are to be consigned to The Rubber Association of America, Inc., (with marginal bill of lading clause reading)

Notify.....
(Here state name of importer)

All bills of lading, together with the invoices, and other documents, should be sent by the foreign shipper, through the regular trade or commercial channels, to the parties by whom the crude rubber is purchased, or for whose account the crude rubber is shipped, and in no case to The Rubber Association of America, Inc.

Upon receipt of documents by the importer or recipient in this country, the bills of lading are to be presented to The Rubber Association of America, Inc., by the importer, accompanied by an undertaking and guarantee in one or more of the forms approved by the War Trade Board, and obtainable from The Rubber Association of America, Inc. They are as follows:

Form No. 1—Importing Manufacturer's Guarantee.

Form No. 2—Importer's and Manufacturer's Guarantee combined.

Form No. 3—Rubber Reclaimer's and Scrap Rubber Importer's Guarantee combined.

Form No. 4—Agreement by Importer.

All applications for the release of importations of crude rubber under the above mentioned guarantees will be received by The Rubber Association of America, Inc., at its office in New York or at any of its branch offices that may at any time be established.

Representatives of The Rubber Association of America, Inc., will be appointed at New York and San Francisco clothed with custom house power of attorney for the endorsement of bills of lading as required by the United States Treasury regulations. These representatives will endorse bills of lading covering importations of rubber consigned to the association only when the guarantee requirements under the preceding clause have been satisfactorily complied with, and the endorsement of such bills of lading has been properly authorized.

It is the duty of importers and purchasers governed by these arrangements when negotiating for fire and marine insurance to have substantially the following clause in their policies:

"In case the assured holds the property covered by this policy under an agreement with the War Trade Board, it is mutually understood and agreed between the company and the assured that in the event of a loss occurring as a result of which the company shall take over any part of or all of the property insured hereby, then the company shall be bound by the same terms and conditions of the agreement held by the assured with the said War Trade Board."

Frequently shipments arrive before documents. The shippers should, whenever possible, mail a signed bill of lading, one stamped consular invoice, and copy of the commercial invoice, on the vessel carrying the shipment.

On shipments arriving before the bills of lading are received, The Rubber Association of America, Inc., will assist as far as possible in overcoming difficulties due to the absence of the bills of lading. The extent of this assistance will be to furnish the importer with a release with a notice to the Collector of Customs and the steamship company which will enable the importer (after satisfying the Collector of Customs and the steamship company of his interest) to obtain delivery by furnishing an import license and a bond to produce the bills of lading later. This is a customary practice in such cases.

A record will be kept of all importations of rubber released under the guarantees as indicated, which will show the particulars of importation indicating the shipper, the importer and the manufacturer, to whom the rubber has been released, and any other data necessary to indicate its final disposition and consumption. This record will be checked from time to time by government inspection of and comparison with the books and records of the manufacturers, importers, dealers and reclaimers.

The War Trade Board at intervals may require reports from manufacturers, importers, dealers and reclaimers showing stocks on hand at a given period, actual consumption and other particulars. These reports will be confidential and will be compiled by the statistician of The Rubber Association of America, Inc.,

for the information of the War Trade Board or any other department of the United States Government. With this information as a basis, modifications or changes may be made from time to time in the regulations and practice controlling the importations, allotment and distribution of supplies of rubber so that the best interests of the manufacturers, importers, dealers and reclaimers and of the country may be properly served. The association will also use its best efforts to provide for a distribution of imports upon an equitable basis, primary consideration being given to the requirements or necessities of the government program.

It will be noted that the substantial modifications and readjustments to be effected are as follows:

(a) The consignment of all crude rubber, irrespective of its origin, to The Rubber Association of America, Inc.

(b) The necessity of obtaining an import license before the commodities mentioned in this bulletin can be imported and the further necessity of securing an export license before any exportations can be made irrespective of destination.

(c) Hereafter all importations of crude rubber must specify The Rubber Association of America, Inc., as the consignee, and importers should immediately notify foreign shippers of this necessity. This applies also to applications for license for export to the United States made to the Rubber and Tin Exports Committee of London.

(d) No changes except as herein indicated in the general practice heretofore followed by importers and manufacturers in clearing their rubber through The Rubber Association of America, Inc., or in arrangements for storage, are now contemplated.

CHARGES: The charges to be made for services rendered by the association in registering imports and arranging for storage, are to continue as heretofore, and are as follows:

Registering plantation and wild rubbers in cases or bales (up to a weight of 500 pounds), 5 cents per case or bale. Casks, cases or bales in excess of 500 pounds, 15 cents per cask, case or bale. Arrangements for storage, 15 cents per cask, case or bale, irrespective of weight.

Registering scrap or reclaimed rubber, 50 cents per ton. Arrangements for storage, 50 cents per ton.

Registering charges to be paid by the manufacturer but collected by the association from the importer at the time of registration. Charges for arranging for storage to be paid by the importer.

### REGULATIONS RELATING TO GUARANTEES.

Pending further instructions from the War Trade Board, the prevailing regulations relating to guarantees will continue, and for the information of manufacturers, importers, brokers and dealers who are not familiar with them, they are here given.

#### SIGNING AND FILING GUARANTEES.

Manufacturers may sign guarantees furnished them in blank. The signature must be accompanied by the corporation seal in the case of a corporation, or signed by a partner in the case of a copartnership. If manufacturers so desire they may lodge such guarantees signed in blank with the importers with whom they deal, or they may lodge them with The Rubber Association of America, Inc., as trustee.

In case such guarantees are filed with The Rubber Association of America, Inc., the secretary shall give such guarantees to importers for their signatures only upon importers furnishing him with typewritten particulars of marks, numbers, quantities, and grades of consignments, together with the names of the steamships by which they arrive, which information shall be placed upon the guarantees before they are released for the importer's signature.

#### PROOF OF DELIVERY.

For the purpose of showing proof of shipment each shipper of rubber to a manufacturer or dealer shall lodge with the secretary of The Rubber Association of America, Inc., within a reasonable time—the limit being 10 days—a signed copy of the bill of lading from the transportation company, or a signed copy of the delivery of receipt from those receiving the rubber, with the gross weight indicated thereon.

The secretary is also to send to each manufacturer a notice describing the goods covered by each guarantee lodged with the association. To said notice a receipt form is attached which is to be signed by the manufacturer as soon as the rubber is received, and returned to the secretary. In this way check is kept on all arrivals at all ports of entry in the United States and actual deliveries to manufacturers are verified.

Should the importer upon examination of the rubber find that it is necessary for him to distribute it to manufacturers other than those whose guarantees were originally lodged, it becomes such importer's duty immediately to notify the secretary of any such changes in disposition and lodge new guarantees for the manufacturers to whom the rubber will actually be shipped.

In this connection it may be mentioned that considerable difficulty has heretofore been experienced by the association by reason of importers not promptly notifying the secretary of such changes in disposition. In the future, changes in the disposition of consignments of rubber must be promptly reported to the secretary, who will be unable to handle importers' documents until complete records of such changes in disposition have been furnished.

#### REJECTED RUBBER.

The attention of manufacturers and importers is called to the fact that they are held strictly accountable for all rubber released for their account and that in all cases of rejection of shipments of rubber in whole or in part, the manufacturers are bound to notify immediately the secretary of The Rubber Association of America, Inc. In such cases the secretary must receive promptly from the seller of the rubber either a new guarantee from a new customer for the delivery of the rejected rubber to him, or the seller must put the parcel in store with The Rubber Association of America, Inc., for his account, pending the resale of the rubber.

#### STORAGE OF RUBBER.

Where consignments of rubber arrive unsold and the importer desires to store them in whole or part, an agreement relieving the association of any liability for acting as custodian should be executed. Copies of this agreement can be had from the secretary and must be signed by the importers prior to the storage arrangements being effectuated in their behalf.

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## THE RUBBER ASSOCIATION OF AMERICA, INC.

### DIRECTORS' MEETING.

AT the meeting of the directors, held December 18, the arrangements made between the War Trade Board at Washington and the association's Committee on Rubber and Kindred Products were formally approved and the association pledged to aid the government in every possible manner.

It was voted that any surplus resulting from the coming banquet be devoted to a smoke fund for the soldiers, also the action of the Rubber Advisory Committee in regard to the association charges for handling rubber imports was confirmed and the name of the Rubber Advisory Committee changed to the Committee on Rubber and Kindred Products.

The directors adjourned to meet at the Union League Club, January 5 at 1 p. m.

#### EXECUTIVE COMMITTEE MEETINGS.

The Executive Committee met on December 18 and elected the following firm and associate members:

FIRM MEMBERS AND REPRESENTATIVES.

Stein, Hirsh & Co., Leo Stein, 61 Broadway, New York.

Rogers, Pyatt, Charles W. Erskine, 79 Water street, New York.

Samuel Cupples Wooden Ware Co., H. B. Wallace, St. Louis, Missouri.

ASSOCIATE MEMBER.

T. C. Marshall, Kelly-Springfield Tire Co., Akron, Ohio.

WAR SERVICE COMMITTEE.

George B. Hodgman, special representative of the association at the War Service Conference held in Washington, December 12, submitted a comprehensive report to the directors who instructed the Executive Committee to appoint a war service committee of five to represent the rubber industry in its general relations with the government, the committee being empowered to appoint sub-committees of not less than three members from the different branches of the industry to deal with their particular problems. Accordingly, the executive committee met on December 19, and appointed the following War Service Committee: B. G. Work, chairman, The B. F. Goodrich Co., New York City; Paul W. Litchfield, Goodyear Tire & Rubber Co., Akron, Ohio; George B. Hodgman, Hodgman Rubber Co., Tuckahoe, New York; J. Newton Gunn, United States Rubber Co., New York City; Harvey S. Firestone, Firestone Tire & Rubber Co., Akron, Ohio.

SMOKES FOR SOLDIERS.

It was announced that a surplus of $349.40 resulting from the Trenton golf tournament had been donated to the New York "Sun" tobacco fund.

#### DIVISION'S MEETINGS.

The Rubber Sundries Division met on December 7, and voted to discontinue the open price bureau.

The Reclaimers Division held a meeting at the Union League Club, December 11, that was followed by a theatre party in the evening.

The Mechanical Goods Division meeting was held December 11 and considerable routine business was transacted.

#### SPECIAL AIRCRAFT COMMITTEE.

In accordance with the resolution adopted at Akron, November 17, President Firestone has appointed the following committee to consider aerial preparedness plans:

Edgar B. Davis, chairman, United States Rubber Co., New York City; Harvey S. Firestone, Firestone Tire & Rubber Co., Akron, Ohio; Paul W. Litchfield, Goodyear Tire & Rubber Co., Akron, Ohio; Charles B. Raymond, The B. F. Goodrich Co., Akron, Ohio; George B. Hodgman, Hodgman Rubber Co., Tuckahoe, New York; Charles T. Wilson, Charles T. Wilson Co., Inc., New York City; Harry T. Dunn, Fisk Rubber Co., Chicopee Falls, Massachusetts.

This committee met at the Council of National Defense in Washington on December 4 and discussed various plans for assisting the government in speeding up the construction and utilization of aircraft. They were later received by the Aircraft Board.

#### ANNUAL MEETING.

The annual meeting of the association will be held at the Waldorf-Astoria, New York, January 7, at 2:30 p. m., when the directors for the ensuing year will be elected and the reports of the officers submitted.

The Board of Directors recommends that the Constitution and By-laws of the association be amended so as to provide that the directors elected at this annual meeting be divided into three classes, to serve one, two and three years, respectively, and thereafter all directors be elected for terms of three years.

The nominations for directors are as follows: William E. Bruyn, L. Littlejohn & Co., New York City; William J. Kelly, Arnold & Zeiss, New York City; H. Stuart Hotchkiss, United States Rubber Co. System, New York City; Paul W. Litchfield, Goodyear Tire & Rubber Co., Akron, Ohio; John S. Lowman, Philadelphia Rubber Works Co., Akron, Ohio; Charles T. Wilson Co., Inc., New York City; Charles A. Daniel, Quaker City Rubber Co., Philadelphia, Pennsylvania; John A. Lambert, Acme Rubber Manufacturing Co., Trenton, New Jersey; Harry T. Dunn, Fisk Rubber Co., Chicopee Falls, Massachusetts, Charles J. Davol, Davol Rubber Co., Providence, Rhode Island; Bertram G. Work, the B. F. Goodrich Co., Akron, Ohio; A. D. Thornton, Canadian Consolidated Rubber Co., Limited, Montreal, Canada.

#### THE EIGHTEENTH ANNUAL BANQUET.

The annual banquet of The Rubber Association of America, Inc., will be held in the grand ballroom and the Astor gallery of the Waldorf-Astoria, on Monday at 6:30 p. m., January 7, 1918.

This event promises to be the most notable gathering of representative rubber men that the industry has ever known. The interests of the nation will dominate this patriotic occasion and reflect the spirit of loyalty to the government that pervades the entire rubber industry.

The committee has arranged an excellent menu and the elaborate program that has been prepared for the entertainment of the members and guests include the following speakers of national reputation: Honorable Newton D. Baker, Secretary of War; Frank A. Vanderlip, president, National City Bank, New York City; Right Reverend Frank du Moulin, Bishop of Ohio.

Tickets will be ten dollars. Arrangements have been made for seating guests at round tables accommodating parties of eight or ten persons. Members desiring entire tables, or those who wish to sit together but do not require an entire table, should notify the secretary. Tickets are sold only to members or to those in their employ, but there is no limitation to the number which each member may purchase.

The boxes in the grand ballroom will be open to the ladies, after 9 p. m., and tickets may be obtained from the secretary.

## MEETING OF THE RUBBER SCRAP DIVISION OF THE NATIONAL ASSOCIATION.

THE regular quarterly meeting of the National Association of Waste Material Dealers was held Tuesday and Wednesday, December 18 and 19, at the Hotel Astor, New York City.

NATIONAL ASSOCIATION MEMBERSHIP BADGE.

The Rubber Scrap Division met at 10 A. M. on Tuesday and was called to order by the chairman, Paul Lowenthal. The report of the committee that was appointed to consider freight classification matters was considered and it appeared that the sense of the committee was against changing the existing classification of fifth class carloads and fourth class less carloads to sixth class carloads and fifth class less carloads.

Attention was called to a change made by the Reclaimers' Division of the Rubber Association of America in Section D, Rejections, of the "Delivery of Standards of Scrap Rubber Specifications and Packing" by adding, "or handling," to the end of the first sentence.

After discussion it was voted that a letter be written by the secretary to the Reclaimers' Division, stating that the Rubber Scrap Division did not approve of this change and requesting that, in the future, such questions should be brought before the national association, in order that both bodies should mutually agree before the adoption of important changes in the specifications.

## ARMY AND NAVY AWARDS.

### NAVAL SUPPLY AWARDS.

THE following awards have been made during the past month for furnishing supplies for navy yards:

HOSE. 4,000 feet rubber-lined cotton-jacketed. $3,200. Hewitt Rubber Co.

PLAY PIPES. 12. $94.20. Republic Rubber Co.

SHEET RUBBER. 500 pounds, medium. $235. New Jersey Car Spring & Rubber Co.

HARD RUBBER. Sheet and hard rod. $1,263. The B. F. Goodrich Rubber Co.

SQUILGEE BLADES. 50,000. $13,937.50. Essex Rubber Co.

### PANAMA CANAL AWARDS.

The following awards have been made during the past month by the general purchasing officer of the Panama Canal:

PLAIN RUBBER WATER HOSE. $7,100. Hamilton Rubber Co.

FIRE HOSE. 5,000 feet rubber-lined canvas. $4,200. United States Rubber Co.

TUBING. 3,000 feet red rubber. $480. The New Jersey Car Spring & Rubber Co.

PACKING. 100 pounds flax. $60. Belmont Packing & Rubber Co.

PACKING. 2,500 pounds rubber sheet. $525. 400 pounds rubber sheet. $84. The B. F. Goodrich Co.

PACKING. 3,500 pounds rubber sheet. $1,165.50. 300 pounds square spiral. $129. Square spiral steam. $875.50; total, $1,004.50. United States Rubber Co.

RUBBER VALVES. $64.04. The B. F. Goodrich Co.

HOSE. 24 pieces, tender, corrugated, $129.84. Republic Rubber Co.

Tires.—Solid rubber. $629. Firestone Tire & Rubber Co.

### ARMY MEDICAL SUPPLIES.

The following awards have been made by the surgeon general of the army:

RUBBER GLOVES. 10,000 pairs medium weight. $2,833.33. Canton Rubber Co., New York City.

RUBBER GLOVES. 10,000 pairs, medium. $2,833.33. 4,500 pairs, light. $1,185; total, $4,018.33. Faultless Rubber Co., Ashland, Ohio.

CRUTCH TIPS. 4,000. $92.95. Canfield Rubber Co., Bridgeport, Conn.

RUBBER DAM. 1,000 yards. $1,060. Atlantic Rubber Manufacturing Co., New York City.

Hospital slippers.—50,000. $40,000. United States Rubber Co., New York City.

Stomach tubes.—2,000. $1,150. Duval Rubber Co., New York City.

Dental Rubber.—300 pounds red. $585. E. J. McCormick Rubber Co., New York City.

Aprons.—25 rubber cloth. $23.75. S. S. White Dental Manufacturing Co., New York City.

Boxes.—1,000 gutta percha. $300. S. S. White Dental Manufacturing Co., New York City.

### AWARD FOR AVIATORS' CLOTHING.

The following award has been made for furnishing aviators' clothing:

WADERS. $12,090. United States Rubber Co., New York City.

### DISCOVERY OF RICH BALATA FOREST.

It is understood that a prospector for gold in the Waini district, British Guiana, recently struck a rich belt of balata trees and reported the discovery to the Consolidated Rubber and Balata Co., Limited.

## JUDICIAL DECISIONS.

INTERCONTINENTAL RUBBER CO. v. BOSTON & MAINE RAILroad. District Court, D. Massachusetts. (2 cases) February 26 and April 17, 1917.

For some time before the starting of the suit by the rubber company for the appointment of a receiver for the railroad it was generally known that the financial structure of the railroad was weak. To prepare for emergencies the attorneys of the railroad drew up a bill asking the appointment of a permanent receiver. This lay in the railroad files until August, 1916, when the figures were brought up to date and the Intercontinental Rubber Co., which had held notes of the railroad from 1913, was asked to file the bill of complaint. It did so upon the understanding that it would not be put to any expense. Upon this bill a temporary receiver was appointed on August 26, 1916.

At a meeting of the railroad stockholders in September of that year the action of the directors was ratified. The minority stockholders opposed the action for a permanent receiver, but were overruled by the court.

In the second case the temporary receiver previously appointed was instructed by the court to pay the interest on $2,000,000 of notes issued by the Connecticut River Railroad Co., from whom part of the Boston & Maine lines are leased. [Federal Reporter, Volume 245, pages 122 to 127.]

FIRESTONE TIRE & RUBBER CO. v. C. E. HERRICK, INC., District Court of Appeals, First District of California, Sept. 18, 1917.

C. E. Herrick, Inc., appealed from a judgment of $376.92, the amount of two orders for the payment of money, handed down by the Superior Court of San Francisco in favor of the Firestone Tire & Rubber Co.

But two points were argued in support of the appeal. First, it was claimed that the cause for the action did not state that Herrick, Inc., had through its authorized agent indorsed the acceptance; and, secondly, that the orders were properly indorsed and executed by a duly authorized officer of the company.

The Court would not seriously entertain either of these and affirmed the judgment of the lower court. [Pacific Reporter, Volume 168, page 578.]

AMERICAN HARD RUBBER CO. v. HOWE. Supreme Court of Illinois, October 23, 1917.

In May, 1914, the Swiss-American Vaporator Co. bought material of the American Hard Rubber Co., and not being of sufficient financial standing to warrant an extension of credit at the time they gave a written guarantee signed by Thaddeus H. Howe for goods to be shipped. The shipments were made. After repeated demands for payment from the Swiss-American people, suit was brought against the guarantor in the Municipal Court of Chicago. The case was taken to the Supreme Court, which reversed the opinion of the lower court granting a judgment in favor of the rubber company for $2,000, and remanded the case to the trial court. [Northeastern Reporter, Volume 117, page 425.]

### CUSTOMS APPRAISERS' DECISION.

Rubber Balloons—Toys.—Small rubber balloons inflated with gas, having an advertisement stamped on them and finished in this country after importation, classified as parts of toys at 35 per cent ad valorem under paragraph 342, tariff act of 1913, are claimed dutiable as manufactures of india rubber or gutta at 10 per cent under paragraph 368. It was found that these balloons are evidently only suitable for the amusement of children. They were held properly classified as parts of toys under paragraph 342.—[Treasury Decisions, December 20, 1917.]

"Rubber Machinery," Mr. Pearson's newest book, filled with valuable information for rubber manufacturers, is now ready for mailing. Price, $6.

# The Obituary Record.

### PROMINENT MANUFACTURER OF RUBBER MACHINERY.

EDRED W. CLARK, who was well known in the rubber trade as a manufacturer of molds and tubing machinery for rubber manufacturers, died at his home in Hartford, Connecticut, on November 20, after a brief illness.

E. W. CLARK

Mr. Clark was born in Boston, Massachusetts, October 27, 1854, but spent his boyhood days in Norfolk, Connecticut. Leaving school at the age of twelve, he went to work in a local factory. In 1879 he formed a partnership in the machine business with L. Tiffany under the firm name of L. Tiffany & Co., with a place of business in Wells street, Hartford, Connecticut, and there he started experimenting with and manufacturing rubber machinery. The first molds and machines were made for John W. Gray, who started the factory now known as the Hartford Rubber Works. Mr. Clark made molds for the first molded solid rubber tires for bicycles. Later, he bought out his partner's interest and continued the business under his own name up to the time of his death. In 1905 his place of business was entirely destroyed by fire, but with characteristic enterprise he started again in a nearby building, and in this new factory he had built rubber-tubing and insulating machines and presses for rubber manufacturers in all parts of the world.

His wife was killed by an automobile in November, 1916, and his grief over that event was considered the primary cause of his death a year later. He was a member of the Church of the Good Shepherd in Hartford, of Pythagoras Chapter, and Hartford Lodge, F. & A. M. He leaves four daughters and two sons and also a large circle of social and business friends who mourn his loss.

### MADE STOCKINETS FOR THE RUBBER TRADE.

Charles Bowdoin Fillebrown, who died at his home in Brookline, Massachusetts, December 2, was well known in the rubber trade, as he was for many years president and manager of the Glenark Knitting Mills, Woonsocket, Rhode Island, which manufactured stockinets used largely by rubber footwear manufacturers. Born in Winthrop, Maine, on December 26, 1842, he received his early education at Kent's Hill, Maine, and later attended Phillips Exeter Academy and the Massachusetts Institute of Technology in 1866 and 1867. He was in the Union Army in the Civil War, from 1862 to 1866 and afterward founded the old dry goods commission house of C. B. Fillebrown & Co. In 1892 he became treasurer of the Massachusetts Single Tax League and three years later was made president of the same organization. He resigned as head of the organization in November, 1913, when, he said, he found that single tax views held by many members were contrary to his own. His wife died in 1877. He is survived by a daughter, Mrs. George M. Murray.

### FIFTEEN YEARS IN TIRE AND ACCESSORY TRADE.

Stanley Fisher died at his home in Wollaston, Massachusetts, on December 18. He is survived by a widow and one child. At the time of his death he was treasurer of the H. & H. Motor Specialties Co. of Boston, Massachusetts, but before assuming that office he was manager of the Boston branch of the Kelly-Springfield Tire Co., and was previously with the Swinehart Tire & Rubber Co.

### WELL KNOWN IN THE RUBBER CLOTHING TRADE.

Charles F. Hamilton, for over 30 years salesman for the Apsley Rubber Co., Hudson, Massachusetts, was run over and instantly killed by a freight train near the Apsley factory, on December 17.

Mr. Hamilton was 67 years of age, and had been connected with the above-named company since its establishment. He traveled over the entire country, as far as the Pacific Coast, confining himself mainly to the clothing end of the business. A large stockholder and a director in the corporation, he had an extensive acquaintance and, because of his uprightness and genial personality, was greatly respected by all who knew him. He was a member of Doric Lodge, F. & A. M., of Hudson.

Mr. Hamilton was twice married. The interment was at Chicago, where his first wife and two daughters are buried. He is survived by his second wife, his aged mother and one son, Harry D. Hamilton, of the Firestone Tire & Rubber Co., Akron, Ohio.

### A FOUNDER OF THE DUNLOP CO.

Sir William Goff Davis Goff, Baronet of Glenville, Waterford, England, died at his residence in that city November 24, aged 80. He was chairman and one of the founders of the Dunlop Tyre Co., and was also concerned in steamship and railway corporations in England. He was an alderman of the city of Waterford, three times high sheriff of the county, and in 1905 was made a baronet by King Edward.

### NEWARK RUBBER CO.'S FIRE.

Four workmen lost their lives in the explosion and fire that occurred last month in the plant of the Newark Rubber Co., Newark, New Jersey. Twenty-nine employes were working in the factory where raincoats for the army were being made. The damage to the building and contents was $50,000.

### COST OF HEALTH SUPERVISION IN THE RUBBER INDUSTRY.

The second compilation of the Cost of Health Supervision in Industry, made for the Conference Board of Physicians in Industrial Practice, by Magnus W. Alexander, West Lynn, Massachusetts, presents data for the year 1916 as reported by 99 industrial plants, located in fifteen states. The total average number of employes represented was 495,544; the average number per plant was 5,005, the maximum, 37,107, the minimum, 141. The average annual cost per employe, including four plants, for which the cost includes sickness, treatment of employes and their families at home, was $2.21. The highest average cost per employe was $7.37, calculated from the reports of two paint factories, while the lowest average cost per employe, as reported by two publishing houses, was $1.03.

The rubber industry was represented by five plants, with 27,462 as the total average number of employes supervised. The total number of cases of all kinds treated was 234,069, and the total medical and surgical cost $76,089, bringing the average annual cost per employe to $2.77.

### AMERICANS BUY FIJIAN RUBBER.

It is reported that five tons of Fijian rubber have been sent to America, while two tons are at Suva awaiting shipment. This amount represents one month's yield and is valued at £1,500. A similar shipment arrived here a month before. According to planters in Fiji their product secures top market prices and the quality and quantity of rubber recently exported are drawing the attention of Americans to the possibilities of Fiji as a rubber producing country.

## EGYPTIAN COTTON VARIETIES.

THE British embargo that went into effect last March prohibiting shipments of Egyptian cotton to the United States via Liverpool is seriously affecting the tire industry of this country. For the past two seasons our importations of Egyptian cotton have averaged 185,000 bales, 80 per cent of which have been used in the manufacture of tire building fabric. The peculiar characteristics of this long staple cotton are most valuable in the construction of fabrics used in guaranteed tires.

Egyptian cotton occupies third place in the list of long staple cotton, the true Sea Island variety being the first grade, and Georgia's and Florida's the second. It has marked characteristics, such as length, strength of fiber, silk-like texture and a brown color.

There are seven chief varieties grown in Egypt, namely: Ashmuni, Mitafifi, Assil-Afifi, Nubari, Abbassi, Jannovitch and Sakellarides. The latter variety with Ashmuni forms 90 per cent of our yearly importations of Egyptian cotton.

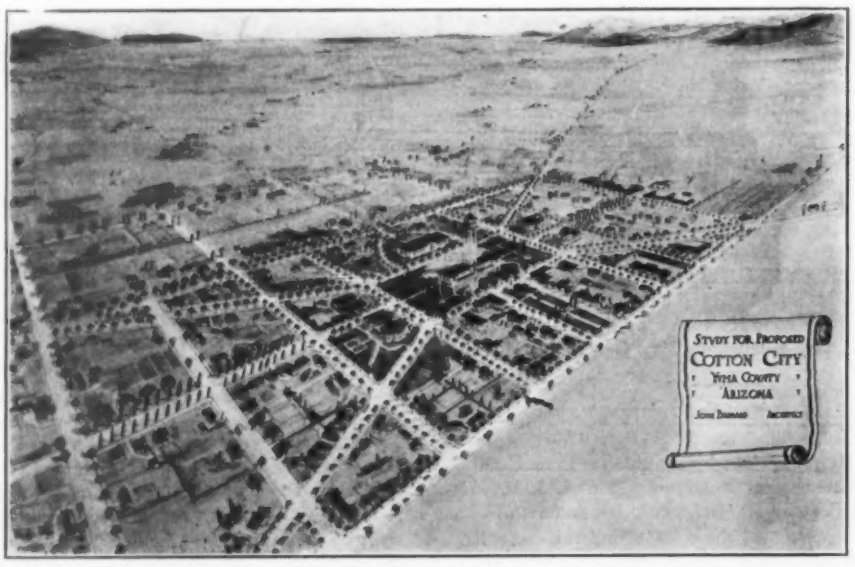
Ashmuni in length occupies the lowest grade, the staple being as a rule about 1¼ inches or less. It is brown in color and not as clean and strong as the other varieties. Afifi or

*United States Department of Agriculture, Bureau of Markets.*

EGYPTIAN STAPLES.

Mitafifi is graded as Brown Egyptians, forming the bulk of the Egyptian crop. The staple is very strong and regular and 1¼ to 1⅜ inches in length.

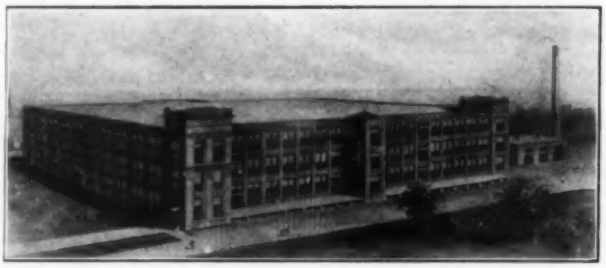
Assili is not grown in quantities up to the present time, not having developed any marked characteristics of quality. The fiber is fairly strong with a staple of 1 7/16 inches. Nubari closely resembles Afifi, but is superior to the general run of Afifi grades, both in length and strength of the staple, which varies from 1⅜ to 1 7/16 inches long. Abbassi possesses the distinction of being the whitest of all the Egyptian grades. The fiber is very fine and the staple 1½ inches long. Jannovitch is rated as one of the best grades and is a scion of Afifi. It has a fine, long fiber fully 1½ inches in length, and the color is not quite as brown as Afifi Sakellarides, or Sakel, is very like Jannovitch, but possesses superior qualities in some respects. In length the staple is about the same, but the color is a lighter brown than Jannovitch.




IDEALIZED VIEW OF COTTON CITY, YUMA COUNTY, ARIZONA, WHERE THE GROWING OF LONG STAPLE COTTON IS BEING ACTIVELY DEVELOPED.

### THE JOHN H. MEYER & CO.'S NEW TIRE DUCK PLANT.

The automobile tire industry has brought into added importance the manufacture of cotton duck, and has developed qualities of this fabric specially suited to the rigid requirements of tire construction. The extensive plant pictured here is one recently erected at Newark, New Jersey, by John H. Meyer & Co., New York City. For many years the Anco Duck was manufactured at this firm's mills at Wilkinsonville, Massachu-



JOHN H. MEYER & CO.'S NEWARK PLANT.

setts, but because of the expansion of this and other branches of the business this new plant has been erected and devoted entirely to the production of tire fabrics, doubling the output. The mill is of the most approved modern construction, and is equipped with up-to-date machinery. The transfer of tire fabrics to this factory enabled the concern to expand the manufacture of khaki duck and tent cloth at its Canton and Wilkinsonville plants and to produce all its own dyestuffs, thus becoming more important than ever in assisting the Government.

## COTTON NOTES.

THE Towar Cotton Mills, Inc., Niles, Michigan, is running its entire plant on No. 7 yarn and manufacturing mostly belting ducks, being equipped to turn out 20,000 pounds of heavy duck per week. A new mill is to be erected next spring which will be devoted exclusively to the manufacture of tire fabric and cord, and it is expected that this mill will be ready to commence operations early in the fall.

George Fish has resigned his position as general manager of the Jenckes Spinning Co., Pawtucket, Rhode Island. During his connection with the company it has had a remarkable growth, and has become one of the largest manufacturers of tire fabrics in the country. Mr. Fish has no definite plans for the future and is now enjoying a well earned rest after many years of active service.

# News of the American Rubber Trade.

### U. S. RUBBER CO.'S MECHANICAL GOODS DIVISION.

THE United States Rubber Co. announces that on January 1, 1918, an improved method will be inaugurated for marketing its entire line of mechanical rubber goods manufactured by the following subsidiaries: Revere Rubber Co., Chelsea, Massachusetts, and Providence, Rhode Island; Peerless Rubber Manufacturing Co., New York City; Mechanical Rubber Co., Cleveland, Ohio; Mechanical Rubber Co., Chicago, Illinois; Sawyer Belting Co., Cleveland, Ohio; India Rubber Co., New Brunswick, New Jersey; Eureka Fire Hose Manufacturing Co., New York City. Hereafter the goods made by these companies will be sold by the United States Rubber Co.'s mechanical goods division.

These companies serve all classes of industries and railroads. They supply many articles that are absolutely essential to factories and transportation companies engaged in war work. To meet the demand for their products and the question of distribution it has been decided to centralize the product distribution of all of these companies in one organization having branches and agents all over the country. By this means customers everywhere will be able to secure much quicker and better service than under the old system.

The subsidiary companies will continue to manufacture their well-known brands, and in addition, the seal of the United States Rubber Co. will identify these goods, as it does the other products of this great company.

### CHANGE IN CRUDE RUBBER HOUSE.

The firm of Henderson & Korn, crude rubber importers and dealers, 82 Beaver street, New York City and Akron, Ohio, was dissolved November 24, Ernest A. Korn selling his interest to Francis R. Henderson, who has assumed all outstanding contracts and obligations.

A partnership to continue the business has been formed under the name of F. R. Henderson & Co. The members of this new firm are Francis R. Henderson, Harold H. Henderson and Bancroft W. Henderson.

### PORTAGE RUBBER CO. INCREASES CAPITAL STOCK.

At a meeting held December 3, the stockholders of the Portage Rubber Co., Akron, Ohio, voted to increase the captal stock to $10,000,000, the common stock from $2,500,000 to $5,000,000, and the preferred from $500,000 to $5,000,000. A quarterly dividend of 1¾ per cent on the preferred stock was ordered paid on January 1 on all stock of record December 20, and a regular quarterly dividend of 3 per cent on the common stock was ordered paid February 15 on all stock of record February 5. The annual meeting will be held January 8 at the offices of the company at Barberton, Ohio.

### GENERAL ELECTRIC CO. TO VOTE ON CAPITAL INCREASE.

A special meeting of the stockholders of the General Electric Co., Schenectady, New York, is called for January 3, when a vote will be taken on a proposition to increase the capital stock from $105,000,000 to $125,000,000. In case this is authorized, stockholders of record January 14 will have the right to subscribe at par for one share for each 10 shares held.

The regular quarterly cash dividend will be payable January 15, and in addition a semi-annual dividend of 2 per cent is payable in stock on the same date. The $10,000,000 capital stock which it is now proposed to offer to stockholders at par will supply all the permanent capital which the management deems it necessary to provide at present.

### DIVIDENDS.

The Firestone Tire & Rubber Co., Akron, Ohio, declared an extra dividend of 25 cents per share, in addition to the regular quarterly dividend of $1, payable December 20 to stockholders of record December 10. This is the first increase in the dividend since 1916, when the company reduced the nominal value of its common to $10 per share and gave ten for one.

The Standard Four Tire Co., Keokuk, Iowa, on December 17, declared a dividend of 20 per cent on its common stock, out of the earnings of the past year, besides setting aside the 8 per cent interest on preferred stock.

Keystone Tire & Rubber Co., Inc., New York City, has declared a dividend of 3 per cent on common stock and 2 per cent on preferred, with an extra dividend of one-third per cent.

Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, has declared its quarterly dividend of 1¾ per cent on its preferred and common stock, payable, respectively, on January 15 and 31 to stockholders of record December 31.

Ajax Rubber Co., Inc., New York City, declared its quarterly dividend of $1.50 per share, payable December 15 to stockholders of record November 30.

Kelly-Springfield Tire Co., New York City, has declared its quarterly dividend of $1.50 per share, payable January 2 to stockholders of record December 17.

The Goodyear Tire & Rubber Co., Akron, Ohio, declared its regular quarterly dividend of 3 per cent on common stock, payable December 1 to stockholders of record November 20.

E. I. Du Pont de Nemours & Co., Wilmington, Delaware, declared a quarterly dividend of 4½ per cent on its common stock, payable December 15 to stockholders of record November 30, with an additional dividend of 32 per cent in Liberty bonds at par with all coupons attached, payable December 22 to stockholders of record November 30. On its debenture stock the regular dividend of 1½ per cent has been declared, payable January 25 to stockholders of record January 10.

The Hawkeye Tire & Rubber Co., Des Moines, Iowa, paid on November 10, the semi-annual dividend on its preferred stock. The par value of the common stock is $25 per share; the selling price was increased to $30 on February 10; to $40 on May 10, and on December 10 still further raised to $50 per share.

The Apsley Rubber Co., Hudson, Massachusetts, has declared its regular semi-annual dividend of 3½ per cent. on its preferred stock, payable January 1, 1918, to stockholders of record December 31, 1917.

### RUBBER COMPANY SHARE QUOTATIONS.

The following market quotations of shares of rubber manufacturing companies on December 24 are furnished by John Burnham & Co., 115 Broadway, New York City, and 41 South La Salle street, Chicago, Illinois.

| | Bid. | Asked. |
|---|---|---|
| Ajax Rubber Co. (new) | 45 | 48½ |
| Firestone Tire & Rubber Co., common | 96 | 98 |
| Firestone Tire & Rubber Co., preferred | 96 | 98 |
| The B. F. Goodrich Co., common | 34 | 36½ |
| The B. F. Goodrich Co., preferred | 89 | 92 |
| Goodyear Tire & Rubber Co., common | 135 | 140 |
| Goodyear Tire & Rubber Co., preferred | 93 | 96 |
| Kelly-Springfield Tire Co., common | 36½ | 38 |
| Kelly-Springfield Tire Co., preferred | 70 | 76 |
| Miller Rubber Co., common | 130 | 140 |
| Miller Rubber Co., preferred | 95 | 98 |
| Portage Rubber Co | 109 | 111 |
| Swinehart Tire & Rubber Co | 16 | 26 |
| U. S. Rubber Co., common | 49½ | 51 |
| U. S. Rubber Co., preferred | 91½ | 93½ |

### TRADE NOTES.

The General Electric Co., Schenectady, New York, has purchased through Louis Schlesinger, Inc., the Lang plant at Newark, New Jersey, on 17th avenue, directly opposite what is known as the Newark factory of the Edison Lamp Works, a branch of the General Electric Co. The area of the newly acquired property is over 65,000 square feet and comprises 36 city lots. The plant is equipped with an electric generator having 1,000 or more horse-power, a dynamo and engine and a well-fitted steam plant.

The J. P. Devine Co., of Buffalo, New York, manufacturer of vacuum drying apparatus, is enlarging its plant in that city. The additions include extensions to the machine shop and vacuum-pump department; also another structure, 50 by 250 feet. This building will contain a large dining room, shower bath, locker room and wash room, for the convenience of the company's employes.

The National Rubber Co. of New York, having found its Chicago, Illinois, building, though capacious, far too small to accommodate its increased business, has moved from 1840 to 2112 Michigan avenue, and has one of the finest tire salesrooms in that city, besides ample work and storage room. The company has over 6,000 customers in that city and vicinity.

The Racine Rubber Co., Racine, Wisconsin, has completed several large additions to its factory and has also increased its power plant.

The Electric Rubber Reclaiming Co., Barberton, Ohio, has increased its capital stock from $200,000 to $400,000. Of this increase $100,000 will be preferred stock which is being sold to its common stockholders. The Vul-Tex department, manufacturing heels, soles and mechanicals, has outgrown its present quarters, and new buildings will be erected to accommodate this branch of the business.

The United Color & Pigment Co., Newark, New Jersey, has been organized to manufacture a complete line of colors for the rubber trade. Joseph H. Mangin is president of the company, and associated with him are Thomas H. Mangin, vice-president; William F. Hoffman, treasurer, and Frank M. Kennedy, secretary; also a number of experienced color makers who have been for years with others prominent manufacturers. The headquarters of the new concern is at 207 Market street, Newark, New Jersey.

J. P. Hunting has been appointed by the General Asbestos & Rubber Co., Charleston, South Carolina, as special representative in charge of equipment and sales. Mr. Hunting has been connected with the automobile industry for more than 12 years, first as sales manager for a large speedometer manufacturer, later as special representative of several prominent automobile publications, and more recently in advertising agency work. He will make his headquarters at Cleveland, Ohio.

The Rubber Waste Co. announces removal into its new building at 152-154 Lincoln avenue, New York City, where it is prepared to handle scrap rubber and metals in any quantity.

The Mohawk Rubber Co., Akron, Ohio, has opened a branch at 1436 Van Ness avenue, San Francisco, California, where a complete stock of Mohawk tires and tubes is being carried. George R. Cowden, formerly of Akron, is manager, and Robert W. Moore is in charge of the clerical work.

The Petley Rubber Manufacturing Co., Milwaukee, Wisconsin, has purchased the Oldtown Rubber Co., of Xenia, Ohio, and removed the entire equipment to 241-247 Oregon street, Milwaukee.

The Air-Lite Rubber Manufacturing Co., notice of whose incorporation was published in THE INDIA RUBBER WORLD in December, was organized for the purpose of making and selling a pneumatic rubber heel of novel construction. The officers of the company are H. E. Spaulding, president; W. J. Atwood, vice-president, and C. D. Spaulding, secretary and treasurer. The headquarters of this company are at 110 West Fortieth street, New York City.

William H. Scheel, dealer in rubber chemicals and ingredients, 159 Maiden Lane and 37 Fletcher street, New York City, has been appointed selling agent for the Point Milling and Manufacturing Co., Mineral Point, Missouri, makers of fine uniform-floated barytes.

The Armstrong Rubber Co., Inc., recently filed notice with the Secretary of State, New Jersey, of an increase of capital stock from $200,000 to $1,500,000. This sum is to be divided into 90,000 shares, of which 50,000 are to be common stock of the par value of $10 each, while 40,000 shares are to be preferred, of the par value of $25 each. The company, of which George F. Armstrong is president, has its headquarters at Newark, New Jersey.

The Adamson Machine Co., Akron, Ohio, which recently absorbed the Akron Steel Casting Co., has started a new 10-ton open-hearth furnace which will add approximately 25 tons a day of such castings to its present converter output.

The Buffalo Foundry & Machine Co., Buffalo, New York, will build a one-story extension, 20 by 80 feet.

### UNITED STATES RUBBER CO. RENAMES BRANCHES.

Commencing January 1, 1918, all the branch stores of the United States Rubber Co., with the exception of the St. Louis store, will be operated under the name of the company, being known as the United States Rubber Co. branches in these respective cities, namely: Boston and Springfield, Massachusetts; Buffalo, New York City, Rochester, and Syracuse, New York; Chicago, Illinois; Cincinnati, Columbus and Toledo, Ohio; Dallas, Texas; Des Moines, Iowa; Detroit, Michigan; Great Falls, Montana; Indianapolis, Indiana; Milwaukee, Wisconsin; Minneapolis, Minnesota; Omaha, Nebraska; Pittsburgh, Pennsylvania; Los Angeles and San Francisco, California; Portland, Oregon; Salt Lake City, Utah; Seattle, Spokane and Tacoma, Washington.

Besides these, the following stores will be designated as respective divisions of the United States Rubber Co., namely: Adams & Ford division, Cleveland, Ohio; Banigan division, Baltimore, Maryland; Goodyear's Glove division, New York City; Maryland division, Baltimore, Maryland; McCord-Norton division, St. Joseph, Missouri; L. P. Ross division, Rochester, New York; Sanders Duck & Rubber division, St. Louis, Missouri; G. E. Thing Division, Buffalo, New York; C. R. Winslow division, Portland, Oregon, and San Francisco, California.

The Duck Brand Co. and the Standard Rubber Shoe Co. have been merged with the Chicago branch store of the United States Rubber Co. The United States Rubber Co. of California will operate as the United States Rubber Co., Pacific Coast division, with branches as indicated in the above list.

### SEAMLESS COMPANY CHANGES.

The Seamless Rubber Co., Inc., New Haven, Connecticut, manufacturer of druggists' and surgical sundries, hospital and sporting goods, is making many important changes in its buildings, adding to its power plant and installing new machinery, while plans are being made for additions and new buildings. Hereafter its "Kantleek" line will be sold exclusively by the retail organization of the United Drug Co., known as the Rexall Stores, but all other specialties made by the company will be sold as heretofore to its large list of customers. A well-balanced sales force will represent the factory in every section of the country, principally among jobbers and the larger retailers. It may be stated that the customers of the old Seamless company are practically unchanged in their attitude toward this company and believe that with the business in stronger hands, they will benefit rather than suffer from any dealings they may have in future, by reason of a better organization, which will naturally mean better service and quality at a fair price.

### LIEUTENANT COMMANDER A. H. MARKS MARRIES.

Mrs. Lydia Locke Harrold and Lieutenant-Commander Arthur Hudson Marks, of the United States Naval Reserves, were married December 22, in the Church of the Ascension, New York City, by the Rev. Percy Stickney Grant, rector of the church.

Andrea de Segurola of the Metropolitan Opera Company gave the bride in marriage. Countess Furulli was matron of honor, and Commander Lorraine Swasey, of the United States Naval Reserves, acted as best man.

After the ceremony a dinner was served at the Ritz-Carlton. Nahan Franko's orchestra played.

Commander Marks was formerly vice-president of The B. F. Goodrich Co. of Akron, Ohio. At the outbreak of the war he gave up his business interests to devote his services to the government in shipbuilding and received a commission in the Naval Reserve force.

### LIEUTENANT SAWYER MARRIED.

Cards have been sent out by Mr. and Mrs. Harry Motley, Jr., of New York City, announcing the marriage of their daughter, Kathryn, to Lieutenant Homer Eugene Sawyer, Jr., on Saturday, December 8, at St. Thomas' Church, New York City. The groom is the son of vice-president Homer E. Sawyer of the United States Rubber Co. Lieutenant Sawyer went to Plattsburg last May and in August received his commission in the 306th Infantry, Camp Upton, Yaphank, Long Island, and is now aide-de-camp on the staff of Brigadier-General Whillenmeyer, 153rd Brigade.

### PERSONAL MENTION.

Jesse H. Mason, formerly chief chemist of the Plymouth Rubber Co., Canton, Massachusetts, has been appointed superintendent of the Stamford Rubber Supply Co., manufacturer of rubber substitutes, Stamford, Connecticut.

James M. Cranz, formerly factory manager of the Republic Rubber Co., Youngstown, Ohio, is now with The Hewitt Rubber Co. of Buffalo, New York, being assistant to the vice-president.

Otto E. Kruger, previously with the Republic Rubber Co., Youngstown, Ohio, has accepted a position in the mechanical division of The Hewitt Rubber Co., Buffalo, New York.

Harry Foster, formerly at the New York branch of the Sterling Tire Corp., Bridgeport, Connecticut, has been recently appointed assistant manager of the company's branch at Jersey City, New Jersey.

Carle L. Brickman has been appointed chief chemist of the Rex-Hide Rubber Manufacturing Co., East Brady, Pennsylvania. He is a graduate of Defiance College, Defiance, Ohio, and of the Department of Chemical Engineering of the Case School of Applied Science, Cleveland, Ohio, and has had considerable experience in the development of rubber and fiber compounds. With a view to raising the already high standard of its products and making further development of Rex-Hide fiber soles and top-lifts, the company is installing an up-to-date laboratory for research and experimental work.

C. L. BRICKMAN

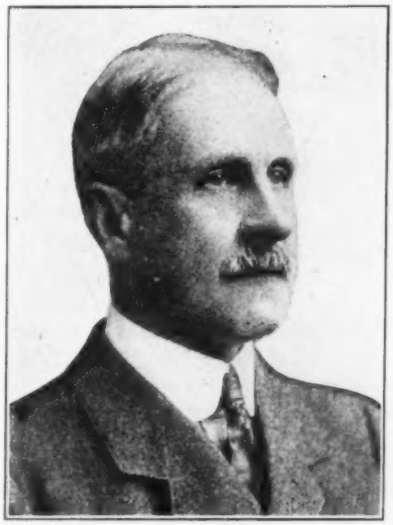
R. B. Crane has been put in charge of the sundry division of the Racine Rubber Co., Racine, Wisconsin.

J. S. Benner, one of the organizers of the Central Savings and Trust Co. of Akron, Ohio, and for many years its secretary, has been elected secretary and business manager of the Electric Rubber Reclaiming Co., Barberton, Ohio.

W. H. Harman, vice-president and general sales manager of the Southwark Foundry & Machine Co., Philadelphia, Pennsylvania, was elected president of that company on November 1, to fill the vacancy caused by the election of Robert Radford to the chairmanship of the board of directors.

## JOSEPH TORREY, PH. D.

TO have devoted a decade and a half to perfecting a single process of reclaiming rubber is an example of concentration of purpose which deserves success; and to have achieved such a favorable result should bring to the investigator the commendation of the industry thereby benefited.



JOSEPH TORREY, PH. D.

Joseph Torrey has devoted his entire time for the last 15 years to perfecting the alkali process of reclaiming rubber. Born in Hardwick, Vermont, in 1862, and graduating from Bowdoin College at the age of 22, he was instructor in chemistry at Lafayette College for one year and professor of chemistry at Iowa College five years. Then, securing the Morgan Fellowship in 1890, he went to Harvard University, but soon resigned to take an assistant professorship. He was made a Ph. D. in 1896.

Under his instruction at Harvard was A. H. Marks, whose name is identified with the alkali process of reclaiming rubber. In 1900 Dr. Torrey went to Akron, Ohio, as chemist of the Diamond Rubber Co. and became superintendent of the reclaiming department of that company. Two years later he went to Liverpool, England, as consulting chemist for the Northwestern Rubber Co., Limited, in 1903 was appointed general superintendent, and later elected director and secretary of that company. He was chairman at the International Rubber Congresses in 1911 and 1914.

Dr. Torrey is a man of quiet tastes, naturally a student and investigator. His principal recreation is golf, in which he is reputed to play an excellent game. His son enlisted in the British army at the outbreak of the war, and is doing excellent service at the front.

### CUBAN TIRE AND RUBBER CO.

The Cuban Tire & Rubber Co., of Havana, Cuba, which was incorporated August, 1916, with an authorized capital of $1,750,000, for the manufacture of automobile tires, inner tubes and other rubber goods, is under the general managership of Thomas C. Gould.

The main factory building is a one-story steel and concrete structure 325 by 60 feet, equipped with modern machinery built in the United States, and with a present capacity of 200 tires per day. The entire plant was erected and put in operation within nine months from breaking ground, and the first tires were made September 1, 1917.

A second building of steel and concrete, 127 by 57 feet, two stories, designed for use as a storage warehouse for supplies and shipping facilities, is at present under construction.

### NEW INCORPORATIONS.

Auto Collapsible Rim Manufacturing Co., The, November 5 (Illinois), $300,000. E. D. Bauman, H. P. Rucker and D. M. Bauman. Principal office, 407-408 Masonic Temple Building, Peoria, Illinois. To manufacture and sell collapsible rims.

Barker Cushion Tire & Rubber Co., November 24 (Delaware), $150,000. C. L. Rimlinger, M. M. Clancy and F. A. Armstrong—all of Wilmington, Delaware. The office of the corporation within the State of Delaware is with the Corporation Trust Company of America, du Pont Building, Wilmington. To manufacture and deal in rubber and gutta percha goods of all kinds.

Bull's Eye Rubber Co., Inc., November 22 (New York), $250,000. A. C. Squires, College Point, E. C. Tengzelius, 6815 Third avenue, Brooklyn—both of New York, and J. Futoransky, 149 Broadway, New York City. To manufacture inner tubes and auto repair stocks, rubber heels and fiber soles, rubber tooth brushes and elastic fabric specialties.

Cambridge Smelting Co., The, October 22 (Massachusetts), $50,000. L. D. Covich, 44 Hewins street; D. Finklestein, 165 Harold street, both in Boston, and J. H. Jones, 22 Rockingham street, Cambridge, both in Massachusetts. Principal office, Cambridge, Massachusetts. To deal in minerals, rubber and merchandise of all kinds.

Cementum Cloth Co., The, November 8 (Massachusetts), $50,000. L. D. Covich, 44 Hewins street; D. Finklestein, 165 Gallatin street, both in Providence, Rhode Island, and P. T. Sprague, 599 Mt. Auburn street, Watertown, Massachusetts. Principal office, Watertown, Massachusetts. To manufacture, sell and deal in all kinds of cloth, cementing cloth, rubber boots and shoes and all goods of which rubber is a component part, cordage and binding twine, and dyeing, finishing and preparing all kinds of shoe tops, linings and raincoats, and rubberizing all kinds of goods and materials.

Chadwin Tire & Rubber Co., Inc., December 6 (New York), $5,000. S. Chatowitz, A. Meisler and D. Meisler—all of 226 West 122nd street, New York City. Principal office, New York City. To manufacture tires, etc.

Champion Tire & Supply Co., November 27 (Indiana), $5,000. F. B. McIlroy, F. F. Friedley and R. B. McIlroy—all of Hammond, Indiana. To buy and sell merchandise and conduct mercantile operations, also to manufacture articles of merchandise sold and handled in connection therewith.

Circle Tire & Rubber Co., Inc., November 22 (New York), $2,000. J. Forma, Y. Forma—both of 145 West 117th street, and S. Chatowitz, 226 West 122nd street—all in New York City. Principal office, New York City. To manufacture tires.

Cooper, T. J., Rubber Co., Inc., November 30 (New Jersey), $75,000. J. McLaren, W. Metkiff and R. Rudolf—all of 154 Nassau street, New York City. Principal office within the State of New Jersey is at 67 Monticello avenue, Jersey City. To manufacture, buy, sell, import, export and generally deal in rubber tires for vehicles of all kinds, and rubber goods of all kinds or goods, wares and merchandise of which rubber is a component part, and the various materials entering into the manufacture of any of such goods.

Davann Tire & Rubber Co., Inc., November 21 (New York), $3,000. I. E. Bermant, 25 St. Nicholas avenue, J. W. Bermant, 105 West 120th street and H. Bermant, 884 Riverside Drive—all in New York City. Principal office, New York City. To manufacture tires, etc.

Delta Tire & Rubber Co., Inc., December 11 (New York), $1,000. Sydney Bernheim, 35 Nassau street, New York City; C. A. Weldon, 591 Seventh street, and H. H. Jacobson, 373 Grand street, both in Brooklyn, N. Y. Principal office, New York City. To manufacture tires.

Edwards Rubber Co., Inc., The, November 6 (Ohio), $100,000. E. W. Edwards, H. E. Andress and H. Williams. Principal office, Akron, Ohio. To manufacture the Edwards Sectional Truck Tire.

Eno, George W., Rubber Co., November 6 (California), $150,000. G. W. Eno, J. C. Stockwell, A. T. Sackett, W. C. Cutler and D. M. Eno. Principal office, Los Angeles, California. General rubber merchandising.

Kimball Tire & Rubber Co., November 27 (Illinois), $10,000. H. L. Kane, W. A. Myer and B. Stenge. Principal office, 1469 S. Michigan avenue, Chicago, Illinois. To manufacture, produce, buy, sell, export or import, and generally deal in rubber and all goods of which rubber is a component part.

Mercury Tire Co., Inc., November 22 (New York), $5,000. E. Salisbury, M. M. Burnet—both of 2 Rector street, and P. J. Osborne, 181 Pearl street—all in New York City. Principal office, New York City. To manufacture tires.

Ocotillo Products Co., The, November 7 (Delaware), $3,000,000. D. M. Bechtel, Goshen, J. R. Fleming, Portland, and C. J. Murphy, Brookston—all in Indiana. Principal office, Suite 1016, Merchants' Bank Building, Indianapolis, Indiana. To extract gum, chicle, rubber and other products from woods, herbs, vines, roots, etc.

Pilgrim Rubber Footwear Co., The, December 11 (Massachusetts), $25,000. E. B. Chapin, J. H. Mitchell and G. M. Mead, all of 84 State street, Boston, Massachusetts. Principal office, Boston, Massachusetts. To buy, sell, manufacture and deal in rubber and leather and articles made wholly or in part therefrom.

Premier Rubber Corp., November 26 (New Jersey), $1,000,000. G. L. Williams, 227 Riverside Rrive, A. M. Loewenthal and W. Loewenthal—both of 106 West 32nd street—all in New York City. Principal office within the State of New Jersey is at 90 Newark avenue, Jersey City. To manufacture, sell and deal in synthetic or artificial rubber.

Sloman, Inc., Ira I., December 4 (New York), $30,000. I. I. Sloman, 164 East 35th street, New York City; M. L. Sloman, 849 Hatch avenue, Woodhaven, and S. Moore, 315 Reid avenue, Brooklyn—both in New York. Principal office, New York City. To manufacture rubber cements, shellacs, etc.

Southern Rubber Co., The, November 26 (Tennessee), $15,000. H. A. Leonard, J. R. Scott, W. H. Davenport, J. H. Witherspoon and B. F. Amis. Principal office, Chattanooga, Tennessee. General automobile tire and repair business.

Three-A-Tyre Corp., The, November 24 (New York), $3,500. A. Falk, 132 Lexington avenue, A. Wetzler, 555 West 170th street, and A. Rosenfeld, 274 West 140th street—all in New York City. Principal office, New York City. To deal in tires and auto supplies.

Union Tire Co., November 21 (New Jersey), $6,000. E. Tiefenbronner, H. B. Fischer—both of 140 24th street, C. E. Weeber and G. E. Weeber—both of 49 Park avenue—all in Guttenberg, New Jersey. Principal office within the State of New Jersey is at 4974 Hudson Boulevard, West New York, New Jersey. To purchase, sell and exchange automobile tires and general automobile supplies and accessories, etc.

Whitestone Tire & Rubber Co., Inc., December 20 (New York), $10,000. W. Lowenthal, 35 Nassau street, New York City; C. A. Weldon, 591 Seventh street, and H. H. Jacobson, 373 Grand street, both in Brooklyn, N. Y. Principal office, New York City. To manufacture tires.

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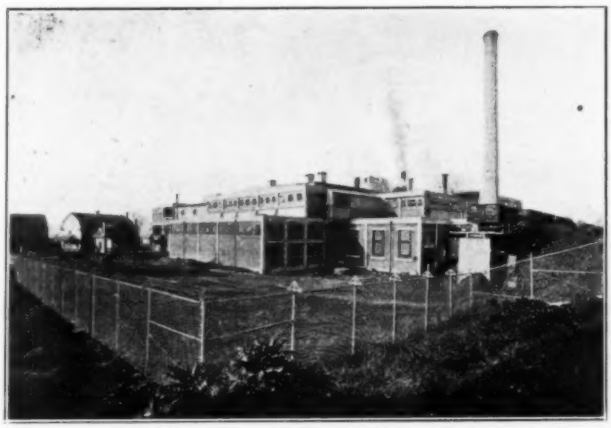
### NEW SELLING PLAN FOR FIRESTONE BICYCLE TIRES.

A new plan has been evolved by the Firestone Tire & Rubber Co., Akron, Ohio, for marketing bicycle tires, that is an advanced step in the direction of conservation. In 1918 this company will make but three bicycle tires; a heavy service tire, a medium weight road tire and a light road tire at a popular price. Thus the dealer instead of handling a dozen different tires, will concentrate his selling efforts on only three. Dealers will be supplied with catalogs, prices and descriptions of these tires upon request.

### AN EXTENSIVE LITHOPONE PLANT.

On this page is a representation of the plant of the Krebs Pigment & Chemical Co., at Newport, Delaware, which is devoted exclusively to the production of "Ponolith," a high grade lithopone. This plant is the outgrowth of the demand for this valuable compounding material, which has grown in ten years from 1,000 tons to 20,000 tons in annual production. Uniformity, opacity and purity of color are among the qualities claimed for this special brand; and as regards fineness of texture, the claim is made that 99 per cent of the company's product will pass through a 350-mesh sieve. The company's sales office is at 217 Broadway, New York City, in charge of R. C. Cox, manager of sales.



KREBS PIGMENT & CHEMICAL CO.'S PLANT.

### CHEMICAL EXPOSITION AT CHICAGO.

In response to invitations from the Chicago Association of Commerce, the Chicago Section of the American Chemical Society and local sections in adjoining States, there will be held next March, in the Chicago Coliseum, an exposition of chemical industries under the same management which has so successfully conducted the three similar expositions in New York city. The growth of chemical industries in the Middle West has kept full pace with the developments in other sections of the country, and, as in other sections, there is still room for greater and more coordinated growth.

### LEAD AND ZINC PIGMENTS.

The marketed output of lead and zinc pigments manufactured in the United States in 1916 showed an increase in value of 39 per cent over the total for 1915.

The output of pigments made from pig lead in these two years is shown in the following table:

| Kind of pigment. | 1916 Short tons. | 1916 Value. | 1915 Short tons. | 1915 Value. |
|---|---|---|---|---|
| White lead: | | | | |
| In oil | 96,041 | $16,560,137 | 122,194 | $15,879,835 |
| Dry | 32,938 | 4,714,343 | 33,907 | 3,513,856 |
| Red lead, Orange mineral, Litharge | 60,774 | 9,632,109 | 45,017 | 6,220,315 |
| Totals | 189,753 | $31,061,589 | 201,654 | $24,614,006 |

It will be noted that the total quantities produced were less in 1916 than in 1915, doubtless owing to the higher price of pig lead. The decrease in quantity was about 6 per cent, but the increase in value about 26 per cent.

It is not permissible to give separately the figures for sublimed lead, zinc oxide, and leaded zinc oxide, as to do so would disclose individual output. The combined production of these pigments in 1916 amounted to 135,606 short tons, valued at $23,515,803, as against 141,383 short tons, valued at $14,962,461, in 1915, a decrease of 4 per cent in quantity and an increase of 57 per cent in value. Manifestly, war conditions were operative in this branch of the pigments industry also.

Lithopone of domestic manufacture to the amount of 51,291 short tons, valued at $5,798,927, was marketed in 1916, as compared with 46,494 short tons, valued at $3,760,472, in 1915.

### NEW ZINC OXIDE PRICES.

The New Jersey Zinc Co., New York City, will limit the term of its contracts for zinc oxide to a period of three months. It announces the following prices, effective on contract for the first three months of the year 1918:

AMERICAN PROCESS "HORSE HEAD" BRANDS.

| | | Carloads | Less Carloads |
|---|---|---|---|
| Special | cents | 10¾ | 11 |
| XX Red | " | 10¼ | 10½ |

FRENCH PROCESS "FLORENCE" BRANDS.

| | | Carloads | Less Carloads |
|---|---|---|---|
| White Seal | cents | 14 | 14¼ |
| Green Seal | " | 13½ | 13¾ |
| Red Seal | " | 13 | 13¼ |

Contracts will be written at carload prices when at least a total of 20 tons of all grades is taken during the three months' period.

Prices are based upon shipment in barrels and are f. o. b. shipping point. When shipped in paper bags of 50 pounds net weight, the price will be one-eighth cent per pound less. These prices are subject to change without notice.

## CANADIAN NOTES.

THE K. & S. Canadian Tires, Limited, Toronto, Canada, has bought five acres of land at Weston, Ontario, and is erecting a new factory for the manufacture of druggists' rubber sundries and other rubber goods. The first building, which will be completed in about a month's time, is a one-story structure, so constructed that four more stories may be added without disturbing the company's manufacturing department, which is to be located in that section.

During the recent campaign for Canada's Victory Loan, advertisers gave free use of their space and advertising men of their pens, to boost the issue. Probably one of the most unusual pieces of literature produced was that by Mr. A. A. Briggs, advertising manager, Dunlop Tire & Rubber Goods Co., Limited, who took blank verse as his medium and as his keynote the word, "Victory," and, by tying it up to the Victory Flagship and the Victory Bond, dreamed of Nelson coming back and sizing up Canada as a country where no one need be told to do his duty.

The Dunlop company took $1,000,000 of the loan.

The buildings of the Mackintosh Rubber Co., Limited, Belleville, Ontario, Canada, are now completed and ready for the installation of machinery. The main building is of reinforced concrete, 251 by 61 feet and there are seven smaller buildings for chemical laboratories, a private gas plant, storage, etc. Clothing, tires, boots and shoes, etc., will be manufactured.

### RED, WHITE AND BLUE TIRES.

Tire casings of black, white, gray and red rubber have been in use for several years, and the tires of numerous companies employ contrasting colors for tread and side walls. It remained, however, for the Amazon Rubber Co,. Akron, Ohio, to suggest the use of the national colors, red, white and blue, in combination. A set of four tires, made up with a blue tread, a white stripe and red side walls, was presented to Vice-President Marshall with the company's compliments.

TRADE NOTES.

The Firestone Tire & Rubber Co., Akron, Ohio, has provided for the direct filling of orders for demountable rims and wheels for Ford cars by jobbers instead of solely by Firestone branches.

The Standard Four Tire Co., Keokuk, Iowa, at a meeting of the stockholders held December 17, voted to expand the company to a $4,150,000 concern by increasing the preferred stock of the company from $500,000 to $3,500,000 and the common from $150,000 to $650,000. A large, modern plant, 400 by 100 feet, and four stories high, will be constructed. The power plant and administration offices are to be in separate buildings. Cord and truck tires will be manufactured in addition to fabric tires.

The company has the pioneer tire plant west of the Mississippi and has been running at full capacity day and night during the year it has been manufacturing tires.

Keystone Tire and Rubber Co., Inc., New York City, announces the opening of branches in the following cities: Seattle, Washington; Richmond, Virginia; Atlanta, Georgia; and New Orleans, Louisiana. It plans the operation of about 65 additional stores before March 15. The total volume of business for the year just ended shows an increase from $2,570,000 in 1916 to a little over $7,000,000 in 1917, a gain of about 150 per cent.

Upright Tire and Rubber Co., Inc., Buffalo, New York, has leased the building at 887-9 Main street, Buffalo, to do a jobbing business on factory-blemished seconds and surplus stocks of tires. Louis Shiffuro is manager.

The Keaton Tire & Rubber Co., Akron, Ohio, is opening a factory branch at Portland, Oregon, with J. S. Tormey as local manager. A corner store in the Congress Hotel has been leased and a service station, 100 by 50 feet, will be erected on an adjoining lot.

The Kelly-Springfield Tire Co., New York City, has opened a branch in Youngstown, Ohio, with Frank Whiteside as local manager.

The Duluth Auto Supply Co., Duluth, Minnesota, has taken over the distribution of Firestone tires, rims and accessories in that city, northern Wisconsin and the iron ranges. Robert McMeechan, special representative of the Firestone Tire & Rubber Co., Akron, Ohio, has been transferred to Duluth, where he will make his headquarters.

The American Michelin organization is just completing its tenth year on this side of the Atlantic. In mentioning this fact in a recent interview, J. Hanvette Michelin, vice-president of the Michelin Tire Co., Milltown, New Jersey, paid a great tribute to American methods of merchandising, to the advanced methods of advertising in this country and to the great power of the American press. As a result, he said, makers of quality tires are enjoying the biggest business they have ever known and the future of the tire business has wonderful prospects.

Tacoma Tire Service System, Inc., 739-41 Broadway, Tacoma, Washington, has changed its name to Tacoma Tire Co., Inc. This company was incorporated in March, 1917.

Hartford Rubber Works Co., New York City, has added two new specialties to its line. One is a tire of the cord type, which has been in preparation for some time, and the other is a non-skid tread called the "Strongheart," which, it is stated, is stronger and more durable than even the Hartford "H" tread.

Each employe of the Mansfield Tire & Rubber Co., Mansfield, Ohio, received a Christmas gift of a card containing $5.00 worth of thrift stamps. At a general meeting it was explained what the stamps meant and how more could be accumulated, thus encouraging thrift and aiding the government. The company expended $1,751 in the purchasing of these stamps.

The Cleveland branch of the Standard Tire & Rubber Manufacturing Co., Willoughby, Ohio, is now located in more commodious quarters at 4602 Euclid avenue, having recently moved from 6521 Euclid avenue. The branch is a new organization, in charge of T. W. Decker, Jr., and a sales and service station will be conducted.

The Kentucky Tire & Rubber Co., Louisville, Kentucky, has been appointed official distributor for Prest-O-Lite acetylene cylinders, manufactured by the Prest-O-Lite Co., Inc. The Kentucky Tire company's offices are located at 525 South Third street.

At a meeting of the Gryphon Rubber & Tire Corp., New York City, held November 23, William J. Kreuder and A. G. Vellek were elected directors to succeed R. W. Owen and A. E. Gordon, who have recently resigned. Mr. Kreuder was also elected vice-president and general manager.

At a recent stockholders' meeting of the Lincoln Highway Tire Co., Fulton, Illinois, the old board of officers and directors was unanimously re-elected.

The War Department has accepted an offer made by the Minneapolis Tire Dealers' Association to instruct 50 men in the vulcanizing and repair of automobile tires. The chief signal officer in accepting this offer wrote: "There is indeed a shortage of experienced vulcanizers, and the Federal Board of Vocational Training in Washington is cooperating with this department in such special training as you suggest. We have referred a copy of your letter to this board, whose plan of operation includes a system of certifying men who may be trained by you. The War Department desires particularly to express its appreciation of your fine offer in this time of need." It is believed that these men can be trained in six weeks.

The Perry Tire & Rubber Co., Middlebury Center, Pennsylvania, plans to establish a Southern branch in Texas.

The Utah Tire & Repair Co., recently incorporated and capitalized for $25,000, will take over the business of the Utah Tire Repair Co. Officers of the new company are: Thomas B. Evans, president; M. E. Smith, vice-president; K. E. Smith, treasurer and secretary.

Nebraska Tire & Rubber Co., Omaha, Nebraska, has purchased a three-story brick building, 66 by 154 feet, with three acres of land, in the northern part of Omaha, on the Missouri Pacific Belt Line, and expects to equip the property with modern machinery to be purchased in the East, which will enable it to manufacture 400 casings and 400 tubes a day. It is expected that full running capacity will be realized early in the year.

The Beacon Tire Co., Beacon, New York, has increased its capital stock from $100,000 to $500,000. The company's factory has an output of 250 tires per day and has been running to its full capacity ever since February 1, 1917.

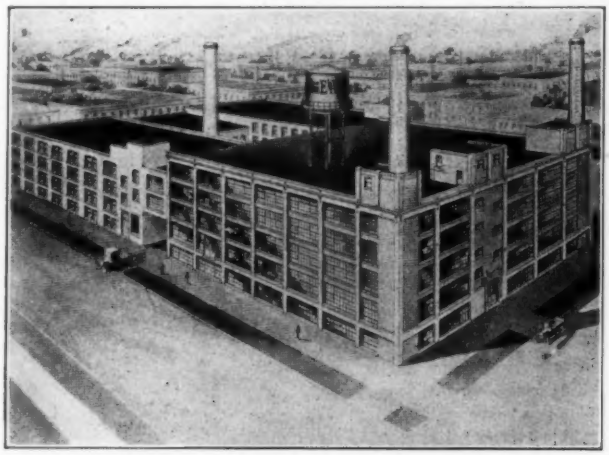
The Automobile Tire Co., Inc., New York City, distributor of Griffith's improved tires, has increased its capital stock from $10,000 to $500,000. The officers and directors of the company are: Edward C. Griffith, president and treasurer; Kirk G. Johnston, secretary, assistant treasurer and general manager, and C. E. Jones, director.

Sprague Tire & Rubber Co., Omaha, Nebraska, recently incorporated at $1,500,000 for the manufacture of automobile tires and tubes, is to erect a three-story factory on Izard street, extending from 18th to 19th street. Contracts have already been let to General Electric Co., Farrell Foundry & Machine Co., and the Akron Rubber Mold & Machine Co. The company expects to be producing 200 tires and tubes a day by July 1. The officers of the company are: E. H. Sprague, president; Francis Ferns, vice-president, and E. E. Harding, secretary. Notices of the incorporation of this company and its intention to build appeared in our December issue.

Sioux City Tire & Manufacturing Co., Sioux City, Iowa, will open an uptown office in the Grain Exchange building. It recently established a branch office in the New York Life building, Kansas City, Missouri. The output of the company is about 100 tires and tubes daily.

### ADDITIONS TO PLANT OF EHMAN TIRE & RUBBER CO.

Recent additions to the factory of the Ehman Tire & Rubber Co., Chicago, Illinois, place this plant among the best equipped rubber mills of medium size in the Middle West. The building, 100 by 128 feet, and four stories high, with a basement of heavy mill construction, will be equipped with automatic sprinklers



PLANT OF THE EHMAN TIRE & RUBBER CO.

throughout. The machinery is to be direct motor-driven, and 2,000 horsepower will be required when the addition is completed. The output of the plant will then be 3,000 tires daily.

The executive offices will be located on the fourth floor, which will allow the razing of the present office building, and provide space for a further factory addition. The office floor will contain a first-aid room to be devoted to the care of the injured and to the general promotion of the health of employees. The office, in common with the factory, will be equipped with the newest appurtenances and will be made as light and sanitary as possible.

To the energy and ability of A. C. Ehman, president, who is in active charge of the entire organization, is largely due the great progress made in the last year. Francis Lackner is vice-president and M. J. Flynn treasurer. The other officers of the company have been selected with reference to their capacity for the proper handling of their various duties, and the character of the entire organization has been built exactly on these lines.

### GREAT REPUBLIC EQUIPPING FACTORY.

The Great Republic Tire & Rubber Manfacturing Co., McAlester, Oklahoma, will be in full operation about March 1.

To avoid the delay incident to erecting new buildings, advantage was taken of an offer to purchase an existing plant that, while not built for rubber manufacturing, is admirably adapted to the purpose. Contracts for machinery and equipment are placed, and operation will follow early in the year. The offices of the company are, at present, in Muskogee, but will shortly be moved to McAlester, a branch sales office being retained in the former city.

THE CITY OF BUFFALO, NEW YORK, HAS GIVEN CONTRACTS FOR fire hose as follows: Hewitt Rubber Co., 3,300 feet at $1.00 a foot; Fabric Fire Hose Co., 2,000 feet at $1.15 a foot; the Gutta Percha & Rubber Manufacturing Co., 1,000 feet at $1.25 a foot, and 1,000 feet at $2.45 a foot, and the Eureka Fire Hose Manufacturing Co., 2,000 feet at $1.20 a foot and 1,000 feet at $1.80 a foot—all for practically immediate delivery.

### PERSONAL MENTION.

J. C. Matlack has been elected president and general manager of the Globe Rubber Tire Manufacturing Co. Mr. Matlack was formerly secretary and general manager of the Ajax Rubber Co., which latter position he had held for six years, ever since the concern was in its infancy. The rapid growth of the business, it is declared, was due largely to his ability, the worth of the company having multiplied 10 times since coming under his management. Mr. Matlack will have his new headquarters at the New York office. The factory is located at Trenton, New Jersey.

George Crackel was the guest of honor at a luncheon recently given at The Alexandria, Los Angeles, California, by fifty members of the staff of The B. F. Goodrich Co. Among those present was F. Richard Carroll, Pacific Coast manager for the Goodrich company. Mr. Crackel is leaving the Goodrich organization to enter business for himself under the name of the Akron Rubber Co., at 1317-1319 South Hope street. In addition to handling pneumatic tires, the new concern will act as distributor for Goodrich solid truck tires in Los Angeles, and will be provided with a completely equipped solid tire service station.

Arthur E. Friswell is now with the Needham Tire Co., Charles River, Massachusetts. Mr. Friswell has had long and varied experience in the manufacture and marketing of tires in this country and abroad.

J. H. Ficken, formerly with the Kelly-Springfield Tire Co. and the United States Tire Co., has been appointed Eastern representative of the Carlisle Cord Tire Co., New York City.

W. H. Queripel is now Broadway representative of the Kelly-Springfield Tire Co. in New York City. He has had considerable experience with the Gaulois Tire Co., and later with the Firestone Tire & Rubber Co., of which company he was formerly the Broadway representative.

H. Belden Joseph, assistant advertising manager of the Kelly-Springfield Tire Co., has resigned to join the Army as a Second Lieutenant in the Quartermaster's Department.

### PORTAGE RUBBER CO. CHANGES.

W. W. Burrell, formerly of the Goodyear Tire & Rubber Co., now has charge of the billing, entry, shipping and stock departments of the Portage Rubber Co.

George H. Kiley, formerly of the Goodyear Tire & Rubber Co., has recently been appointed manager of the New York City branch of the Portage company, succeeding Doucette, who resigned on account of ill health.

J. D. Pasho was recently transferred from the New York territory to take charge of the Atlanta, Georgia, branch in place of E. H. Sims, who resigned.

The company has recently opened a new branch in St. Paul, Minneapolis, known as the Twin City branch. It has become necessary on account of increase of business for the branches in the following named cities to move into larger quarters; Des Moines, Iowa; Detroit, Michigan, and Atlanta, Georgia.

### GOODYEAR PROMOTIONS.

The Goodyear Tire & Rubber Co. announces the following changes in branch managers:

F. J. Redeman has been transferred from the Hartford branch to the manufacturers' sales department in the New England district, with headquarters at Boston.

E. J. Smith, formerly manager at Providence, Rhode Island, has succeeded Mr. Redeman as manager at Hartford.

O. C. Pahline, formerly salesman in the Providence territory, has been promoted to the position of branch manager at Providence.

## THE RUBBER TRADE IN AKRON.

*By Our Regular Correspondent.*

A COAL famine which had all of Ohio in its grip for the two weeks preceding Christmas worked with particular force in Akron and for several days threatened to stop all manufacturing in the city. Only through the combined efforts of city and Chamber of Commerce officials, working in co-operation with the officials of the large rubber companies, railroads and the state, were the factories enabled to continue running.

As it was, one rubber factory was forced to close down for a day in all departments and others suffered loss. The Philadelphia Rubber Co. closed Saturday, December 15, but secured enough coal over Sunday to enable it to open again Monday morning.

The greatest danger from the famine arose through the inability of the Northern Ohio Traction & Light Co. to secure enough coal of the right quality to operate its power plant. Even the largest rubber companies were dependent to some extent upon the power furnished by the traction company and work was halted when the power was turned off on Monday, December 17, for several hours. The low grade of coal the company was forced to use gave such a large quantity of ash that the furnaces were clogged.

C. W. Seiberling, vice-president of the Goodyear Tire & Rubber Co. and president of the Chamber of Commerce, finally obtained the release of 172 carloads of coal consigned to the traction company, which was held in the yards of the Wheeling & Lake Erie railroad, near Pittsburgh, and the coal was rushed to Akron, bringing relief in the dangerous situation.

* * *

That the rubber companies located in Akron are bringing prosperity to the city in spite of the war is proved by a report given out December 18 by the city building department. The report indicates that the year will show a substantial increase in the number and value of permits issued, even in comparison with 1916, which was a record year for the city.

There have been 4,984 permits for a total value of $13,200,000 issued this year. The total for 1916 was 4,658 permits, having a total value of $12,824,536. There was a slight decrease in the number of permits for dwellings, 2,262 having been issued, as compared with 2,687 in 1916.

In both years 99 permits for workshops and factories were issued. Two large factories are included in the 1917 permits, a $500,000 addition for the Firestone Tire & Rubber Co., and a $500,000 addition for the Goodyear Tire & Rubber Co.

* * *

An extensive advertising campaign to attract laborers to Akron to take the place of the young men who have been called in the draft is being planned by the Chamber of Commerce in cooperation with the officials of the large rubber companies.

Since war was declared, nearly 8,000 men have left the city to join various branches of the United States service. Other men did not come here to take their places. In many instances, girls stepped into the places left vacant by the men who had answered the call to the colors, but many vacancies were left.

In the advertisements calling for men, it will be pointed out that larger wages are paid in Akron than in almost any other city in the country and that steady work the year around is provided.

* * *

A large share of the credit for the success of the big soldiers' benefit concert which was held in Akron's new $300,000 armory Wednesday evening, December 19, goes to the employes of the rubber companies who not only willingly helped to boost the entertainment, but supplied several of the acts.

The Friars Club, of the Goodyear Tire & Rubber Co., which was sent to Camp Sherman Thanksgiving Day to stage an entertainment for the Akron boys encamped there, opened the program, fifty dancers, singers and instrumentalists taking part in a rapid-fire act under the direction of Al. Herring.

The Yellow Dogs, of The B. F. Goodrich Co., supplied five acts, and the Ladies' Minstrel Company, of the Firestone Tire & Rubber Co., one act. Altogether, 17 acts were given, with H. Evans Williams, the noted American tenor, who lives in Akron, topping the bill.

A record crowd packed the armory. Seats sold at $1 each, and every one was taken. The proceeds of the entertainment were used to buy Christmas presents for Akron's soldier boys.

* * *

When the questionnaires were sent out to the 30,000 men of draft age in Akron, forces were organized at all the rubber companies to aid the employes to fill out the blanks correctly. Legal aid was furnished without charge. Thousands of employes took advantage of the opportunity, and the work of draft officials at the county court house was greatly lightened.

* * *

The output of the Miller Rubber Co. will be trebled when machinery is installed in the buildings recently completed or now under construction, according to the announcement of Jacob Pfeiffer, president of the company. The number of employes will be increased to 5,000. The completion of the buildings had been delayed on account of the war, he said. Plans for the welfare of employes are now being worked out by the company officials.

* * *

Production of the Portage Rubber Co., Barberton, has been increased from 1,000 to 2,000 tires daily as a result of the construction of the new buildings which provide a large increase of floor space. No new branches are being planned as all orders that can be handled are being received.

* * *

The General Tire & Rubber Co. claims the distinction of having the only tire saleswoman in the world. She is Mrs. Maud Cummings, of Dallas, Texas, who has charge of the entire Dallas territory. Recently on a trip to Waco, Mrs. Cummings sold 42 casings and 48 inner tubes in one day.

* * *

The voluntary plan of insuring the lives of all its workers, of giving compensation for time lost through serious illness, and of paying life-long annuities to those whose years of service warrant retirement from active service, has produced very satisfactory results in the factory of The B. F. Goodrich Co., Akron, Ohio. The system was established two years ago and now makes the following showing: through what it calls its Department of Industrial Relations, which it looks upon as a means of co-operation, not of charity, it has paid compensation during illness to 6,000 employes; it has instructed 16,600 persons in 3,200 classes in reading, writing and speaking the English language; it has given an average of $750 in insurance to 120 families or groups of dependents of 120 deceased employes; it has paid 48,000 visits to sick employes through its nurses; it has placed 40 employes on the honor service roll to receive service annuities; and it has awarded 176 prizes for suggestions for improvements in working facilities. During 1917 there has not been one fatal accident, while the actual number of accidents has decreased more than 20 per cent in spite of the fact that the number of employes during the year has been greater than during 1916.

* * *

The new plant of the Williams Foundry & Machine Co. for building tire repair outfits is nearly complete and will be operated early in February, tripling the capacity of this department and relieving the shortage in Akron-Williams vulcanizing equipment which has been acute for many months. The building is 275 by 40 feet and three stories high, and its construction is

one of several moves, in connection with the recent change in management of the company and the increase in capitalization to $2,500,000.

* * *

Perhaps the most extraordinary stockholders' meeting ever held in Akron was the annual meeting of the Firestone Tire & Rubber Co. on December 15 at the Firestone Club House, attended by nearly 5,000 shareholders, the works being shut down meanwhile. The big auditorium was crowded to the walls, yet nearly 1,000 stockholders who could not get into the

STOCKHOLDERS' MEETING, FIRESTONE TIRE & RUBBER CO.

main hall gathered in the dining room below. Five hundred salesmen were there from all sections of the country.

It may be remembered that the company, a year ago last November, authorized that 50,000 shares be offered for sale to employes. Subscription books were opened and 11,300 employes out of the total 13,000 became stockholders.

The balance sheet shows the following significant figures:

| | | |
|---|---|---|
| ASSETS. | | |
| Lands, Buildings, Machinery and Equipment..... Net Sound Book Value. | | $16,597,362.10 |
| Investments in Securities: | | |
| United States "Liberty Loan" Bonds..... | $500,000.00 | |
| Miscellaneous Stocks and Bonds..... | 1,200,647.56 | |
| Total Investments in Securities..... | | 1,700,647.56 |
| Liquid Assets: | | |
| Finished and In-Process Goods and Materials and Supplies Inventoried at Cost..... | $14,034,626.48 | |
| Cash ..... | 2,452,839.87 | |
| Notes and Accounts Receivable..... | 11,817,421.64 | |
| Total Liquid Assets..... | | 28,304,887.99 |
| Due from Employes on Account of Common Capital Stock Purchases and Sundry Advances..... | | 4,835,134.80 |
| The Capital Stock Purchases are Secured by Deposit of Stock as Collateral. | | |
| Expenditures Applicable to Future Operations..... | | 195,664.98 |
| Total ..... | | $51,633,697.43 |
| LIABILITIES. | | |
| Preferred, 6%, Cumulative Capital Stock..... Authorized Issue $10,000,000.00. | | $8,500,000.00 |
| Common Capital Stock..... Authorized Issue $5,000,000. | | 3,500,000.00 |
| Current Liabilities: | | |
| Notes Payable for Borrowed Money..... | $9,715,000.00 | |
| Accounts Payable ..... | 838,666.75 | |
| Accrued Salaries and Wages, Real and Personal Taxes, etc..... | 314,281.32 | |
| Total Current Liabilities..... | | 10,867,948.07 |
| Subscription to United States "Liberty Loan" Bonds..... | | 490,000.00 |
| Reserves: | | |
| For Welfare Work and Pensions..... | $1,100,000.00 | |
| For Insurance Losses..... | 284,996.23 | |
| For Federal Income and War Excess Profits Taxes ..... | 767,928.30 | |
| Total Reserves ..... | | 2,152,924.53 |
| Surplus ..... | | 26,122,824.83 |
| Total ..... | | $51,633,697.43 |

In President Firestones's report, which was enthusiastically received, he announced sales last year of $61,587,219.29—an increase of 71 per cent. over the total of the previous year. Also, that it was his opinion that, even in these troublesome times, the company, if not too greatly hampered by transportation and other facilities, can operate the factory to the point of full production, including, of course, the government requirements.

* * *

The annual report of the Mason Tire & Rubber Co., Kent, Ohio, shows gross sales exceeding $1,200,000 and total profits of $181,504; a balance of $104,330, or practically 20 per cent on the common stock, after deducting income tax reserve, preferred dividends and preferred dividend reserve; an increase in par value of preferred stock from $10 to $100. The following officers were elected: directors, O. M. Mason, D. M. Mason, D. N. Mason, John H. Diehl and R. W. MacKinnon; president, O. M. Mason; treasurer and general manager, D. M. Mason; secretary R. W. MacKinnon.

* * *

All employes of the Goodyear Tire & Rubber Co. wearing service pins for five, ten or fifteen years' service were present at a banquet held Saturday evening, Decembr 15, at the factory dining hall of the Goodyear. There are at present 1,125 men holding service pins and twenty-four women. Factory officials spoke at the banquet.

* * *

The Majestic Rubber Co. has tripled its floor space by removal from 46 East South street to 901 South High street. Considerable new equipment will enable the company to put out a large quantity of rubber goods.

* * *

The Edwards Rubber Co. has increased its capital stock from $10,000 to $100,000.

* * *

A fire, which originated in the chemical storage building of the Amazon Rubber Co., threatened to spread to an immense coal pile close to the main factory building. The situation for a time was serious, as the entire factory would have been imperiled if the coal had caught fire.

* * *

Telegraphy and French are the newest studies to be added to the curriculum for employes of the Goodyear Tire & Rubber Co. Large numbers of employes have enlisted in the courses. Classes in Spanish and aeronautics are also proving popular.

* * *

C. W. Seiberling, vice-president of the Goodyear Tire & Rubber Co., was elected president of the Akron Chamber of Commerce at the recent annual meeting. Robert E. Lee, superintendent of labor of the Firestone Tire & Rubber Co., was elected first vice-president.

* * *

A. B. Jones, director of plant administration of The B. F. Goodrich Co., has been made a member of the Akron Board of Health for a term of five years.

* * *

Harry D. Hamilton, of the footwear department of the Firestone Tire & Rubber Co., was called to Boston the week before Christmas, owing to the sudden death, by accident, of his father, Charles F. Hamilton, for many years a leading salesman for the Apsley Rubber Co., of Hudson, Massachusetts.

## THE RUBBER TRADE IN BOSTON.

*By Our Regular Correspondent.*

THE holiday trade in Boston felt the trend of conservation in a greatly increased demand for useful articles, rather than jimcracks and dispensables. The business in necessities in the guise of gifts was especially noticeable in waterproof garments, in which many of the big stores must have had an excellent trade, judging by the calls on the manufacturers for sizes. Another pointer in the same direction was the heavy

call for rubber boots in youths', misses' and children's sizes, which entirely exhausted jobbers' stocks and made inroads in retail stocks in the shoe and department stores. Rubber toys were similarly affected, trade having been more than ordinarily good for everything in this line from baby rattles to red rubber animals, while such sporting goods as balls and footballs were in similar good demand.

* * *

It is estimated that 100 barrels or about 5,000 gallons of rubber cement are manufactured daily in Lynn, and for the making of that amount the same number of gallons of naphtha are needed. Now that there is so great a demand for gasoline for motive power, a local chemist advises the use of benzol as a rubber solvent. Benzol is more plentiful than for a long time before, now that the gas and coke men are saving it. At present it is used extensively in the production of munitions, but after the war is over and the demand for munitions diminishes, there ought to be plenty of benzol for rubber cement manufacture, if—and here is the if—it can be deodorized, and deprived of its noxious properties.

* * *

The Boston Woven Hose & Rubber Co., Cambridge, Massachusetts, has completed orders for 100,000 feet of fire hose for the United States Government for use at the various army cantonments throughout the country, which are practically wooden cities, and therefore require efficient fire protection. The hose is in 50-foot lengths, each of which has been inspected by the National Board of Fire Underwriters and bears the label of that organization. The company is now at work on 100,000 feet of gasoline hose, in 20-foot lengths, for the government.

As showing the value of advertising, the statement of a representative of the company may be of interest. He says:

"Five years ago, we sold less than 1,000,000 packages in a year. For 1918, we are planning to sell more than 5,000,000 packages. This means that we have five times as much business today bearing our name as we had five years ago. It also means that it is much easier to plan the work of the jar ring department than five years ago, and last but not least, it means that 5,000,000 packages, each in itself an advertisement of B. W. H. standard and quality, are being distributed throughout the length and breadth of the country, and shipped to people who are learning to respect and use exclusively the trade-marked product of our jar ring department."

This company has entered upon an entirely new line of manufacture—that of artificial leather. The process calls for a treatment of fabrics with a nitrocellulose composition, which makes it possible to produce a fabric which in appearance and durability is a good substitute for leather. A new double-texture fabric of this material is now being manufactured with a rubber combining element between, this being manufactured expressly for automobile tops, furnished in colors to match the cars upon which it is used. For two years this concern has been developing the manufacture of high grade rubberized fabrics to be used for the manufacture of auto tops and trimmings, and its lines of these goods have met with a steadily increasing sale. Besides piece goods it is manufacturing quantities of single-texture carriage cloths, robe linings, blanket and apron stocks, and has recently been called upon to supply large numbers of hospital sheets, institution blankets, ice aprons and rubber ponchos for army use. However, the new departure mentioned is the manufacture of an artificial leather in which there is no rubber used.

* * *

Ensign Elisha E. Converse, son of Harry E. Converse, president of the Boston Rubber Shoe Co., and grandson and namesake of Elisha S. Converse, the founder of that company, was married early last month at Norfolk, Virginia, the bride being Miss Lillian Yaldwyn Buckland Taylor, daughter of Mrs. W. Buckland Taylor, of Toowoomba, Australia. Ensign Converse was graduated from Yale in 1915 and from the Naval Cadet School in Charleston, Massachusetts, last April, and was on a pilot boat in Boston harbor until transferred to the South. He expects to sail abroad at an early date and as Miss Taylor and Mrs. Converse went to Norfolk to pass Thanksgiving with him, the ceremony was hastened on that account. Parker Converse, the younger brother of the bridegroom, was unable to attend, as he is now serving on the mine sweeper *Anderton* off the coast of France.

* * *

The Hood Rubber Co. will add to its plant at East Watertown, Building No. 61, a concrete and brick one-story structure, to cost about $10,000, work to begin at once.

Frederick C. Hood, of the Hood Rubber Co., was elected president of the Associated Industries of Massachusetts, at the annual meeting held in Boston the middle of last month.

* * *

The Plymouth Rubber Co., Canton, Massachusetts, has transferred its heel and sole department to a new building devoted entirely to that branch of its business. The company did the best single month's business in its history in October, and the year's business will greatly exceed that of any previous year.

* * *

Regarding the Panther Rubber Manufacturing Co., whose entire manufacturing plant in Stoughton was destroyed, the company has its Chelsea factory in full operation, making rubber heels and coated duck for Gem insoling, is making every effort to get its temporary factory at Stoughton into working order, and hopes to begin manufacturing there the first of next month. In addition to this the company has purchased the plant of the American Rubber Manufacturing Co. in Trenton, New Jersey, and is now reclaiming stock in that factory. With these three plants, the company will be enabled to turn out twice as many heels and soles as heretofore, besides considerably enlarging its output in its usual lines of manufacture.

* * *

I. Frank Burnham, for several years superintendent of the Stoughton Rubber Co. plant, at Stoughton, Massachusetts, has resigned to accept a similar position with the Oxford Rubber Co., Cambridge. At the time of leaving, the employes, to the number of several hundred, gathered to present to him a handsome gold watch and chain. His successor has not been appointed, his father, Ira F. Burnham, vice-president of the company, assuming the management at present.

* * *

The Fisk Rubber Co., Chicopee Falls, Massachusetts, has engaged the services of H. T. Greene as safety inspector. He will cooperate with the safety committee and devote his time to devising improvements in the factory to prevent accidents, and in promoting an educational campaign among the work-people along safety lines. Mr. Greene is a graduate of the mechanical engineering course at Columbia University.

The Fisk Rubber Co. plant shut down December 20 for the usual Christmas and New Year vacation of two weeks.

* * *

The Dayton Tire Co. has removed to handsome new quarters at 700 Beacon street, where its service station and repair department is adequate to handle the business required of it. A solid tire unit has been added, and a 25-ton press has been installed to press on solid tires. This company carries several types of solid and pneumatic tires, including Goodyear, Marathon, Carlisle Cord and other standard makes, and will stock between 4,000 and 5,000 tires. E. C. Newcomb, the president, and Joseph M. Everett, manager, are men of long experience in the business.

* * *

The Pilgrim Rubber Footwear Co. filed a certificate of incorporation December 11, with a capital of $25,000. This is virtually only a change in name of the long-established jobbing house

known as the Pilgrim Shoe and Rubber Co., with a store at 276 Summer street, in this city. This concern jobs the Hood Rubber Co.'s boots, overshoes and tennis lines, and does not handle leather shoes. Owing to frequent misunderstandings, and the receipt of inquiries for goods in leather lines, the company chose to take a new name, more suggestive of the lines carried.

The officers and incorporators are: E. Barton Chapin, president; John H. Mitchell, treasurer, and Gladwin M. Neal, clerk. Mark W. Shaw remains as general manager.

* * *

At the December meeting of the Rhode Island Retail Shoe Dealers' Association, at Providence, the Boston correspondent of THE INDIA RUBBER WORLD was the principal speaker, his subject being the rubber situation. He gave a number of interesting facts and figures regarding the footwear end of the rubber industry, and predicted higher prices for the year 1918. The shortage of rubbers was in part attributed to the demands of the Government for footwear for our soldiers and sailors, and also the call to arms of many workmen from the rubber factories.

* * *

The Hazen-Brown Co., Brockton, Massachusetts, is doing a very extensive business in its Safe Pack paper, a waterproof and dampproof material, a combination of paper and mosquito netting, for strength, with a composition of various materials for waterproofing. Another variety is a thick sheet of paper with a thinner one for lining, the composition being spread between and cementing the two. The company is furnishing this material to the government, all food products sent abroad for our soldiers being packed in, or the cases lined with, this wrapping material.

## THE RUBBER TRADE IN TRENTON.

*By Our Regular Correspondent.*

THE most vital problem with which the rubber manufacturers of Trenton have contended during the past month is the scarcity of coal. While the entire country has been in the throes of a coal famine, the Trenton manufacturers have been particularly affected, many of the firms discovering the fact that they would be forced to cease operations within twenty-four hours if shipments did not arrive. But fortune favored the rubber industry, and John S. Broughton, president of the United & Globe Rubber Manufacturing Co., was appointed fuel administrator for Mercer and Burlington Counties, where the large plants of central New Jersey are located.

The United States Fuel Administration made an excellent selection in the appointment of Mr. Broughton. Under his efficient administration conditions are now reaching a normal basis and all companies—particularly those working on government orders—are indeed thankful for his wise judgment in regulating the disposition of coal.

* * *

Another problem that is causing some dismay to the rubber manufacturers of this section is a recent ruling made by the Public Service Corporation of New Jersey that motive power supplied to plants shall be cut off after 4:30 o'clock in the afternoon. The effect of this order, which as yet has not been carried out, is easily imagined. The production of the plants will be greatly decreased, orders cannot be filled in time, the pay-rolls will be smaller and employes are likely to become disgruntled. This condition, it is sincerely hoped, will soon be remedied, and plans are now being formulated by certain rubber companies for an agreement with mercantile establishments whereby electric current not needed by the latter after the zero hour stated will be transmitted to the plant of rubber firms that are sincerely endeavoring to aid the government in its prosecution of the war.

* * *

The Thermoid Rubber Co. is one of the few plants in this section that is not affected by the shortage of coal and is, therefore, in full operation. Many large orders have recently been received, including government contracts for asbestos brake linings.

* * *

Extensive building operations of many rubber plants that were noted in the December issue of THE INDIA RUBBER WORLD have been rushed during the month in anticipation of a great influx of orders. The Spottswood Rubber Manufacturing Co. has begun improvements to its new Trenton plant, preparatory to the abandonment of the Spottswood plant. The Joseph Stokes Rubber Co. has contracted for the erection of a one-story addition, 25 by 65 feet, for the purpose of increasing its output of hard rubber products.

Christmas was celebrated among the employes of the different plants and collections were taken for the purpose of sending gift boxes to former workmen now in the National Army at Camp Dix, at Wrightstown, ten miles from Trenton, and to those in other branches of the army and navy. Exercises were held at the plant of the Mercer Rubber Co. at Hamilton Square. Addresses were delivered by prominent ministers of this city and an excellent program was given by the employes. An organ has been installed at the plant to provide musical entertainment. Approximately 500 persons, nearly the entire population of the village, attended the celebration, and F. R. Sayen, of the firm, presented a silver loving-cup to Rev. W. W. Payne in appreciation of his "Christian work among the employes." The plant is busily filling government orders for airplane accessories.

* * *

For the purpose of encouraging athletics among the employes, the Semple Rubber Co., of which Charles H. Semple is the president, has erected an inclosed basket-ball court at its plant. Teams have been formed and games are played during the noon hour. Mr. Semple claims that greater harmony prevails among the employes through athletic competition, and that they are also physically benefited.

* * *

The United & Globe Rubber Manufacturing Cos. have recently delivered a large order of cotton-covered fire hose for the government. The order was completed in a month's time, and the employes were complimented by members of the firm for the faithful manner in which they had applied themselves to the task.

* * *

Fire recently destroyed the plant of the Para Rubber Co. at South River, New Jersey, with an estimated loss of $10,000, fully covered by insurance. Three explosions occurred in the mixing room, and John Zimmerman, of Milltown, foreman of the plant, was severely burned about the head and body. He was alone in the mixing room, preparing chemicals for testing the quality of rubber, when the fire started. The company has been in operation for five years and specialized in the manufacture of druggists' sundries.

* * *

John A. Lambert, treasurer and general manager of the Acme Rubber Manufacturing Co., and president of the Rubber Manufacturers' Association of Trenton, New Jersey, has been a strong advocate for the substitution of war savings stamps for cash bonuses, and at a recent meeting of the association it was voted to carry out the plan in local rubber plants. Thousands of employes who received cash bonuses last year during the holiday season were this year given interest-bearing government stamps instead.

A CORPORATION KNOWN AS THE MINERAL RUBBER CO. HAS BEEN organized in Pocatello, Idaho, for the purpose of developing a number of claims in Utah said to contain deposits of elaterite, gilsonite and ozokerite.

# The Rubber Trade in Great Britain.

*By Our Regular Correspondent.*

GENERAL REMARKS.

DESPITE reports by committees on industrial fatigue and like subjects, the amount of work which is being pressed upon rubber manufacturers, especially proofers and makers up, is such that overtime and even all-night work have become a fixed matter of necessity.

The Rubber Manufacturers' Association has come prominently forward in undertaking certain government contracts, thus relieving the officials of a good deal of work. In the rubber trade, as in many others, the price paid by the government for goods is now based on a system which involves the disclosure by the manufacturers of their working costs. It is not altogether surprising, in view of the known facility with which rubber can be blended—to use a polite expression—that wide discrepancies have been found in the figures for costs sent in by different firms for what purports to be the same rubber mixing. This has led to the necessity of further investigation. A curious situation which has arisen out of this is that makers up who have had their cloth proofed for them under contract have sent in the finished articles without knowing what price they will receive for them or how much they will have to pay the proofer. No doubt matters will all be arranged in due course, but the situation is one without precedent in the trade and has naturally given rise to much discussion.

The easy prices prevailing for the raw product, while being the cause of some lamentation in producing circles, are proving beneficial to the industry generally. The prevailing condition of the ordinary home trade is that in order to get delivery buyers are prepared to pay good prices and do not bother about writing all around, the trade for lower prices when they get a quotation. As a manufacturer said to me the other day: "Why should I bother about getting out a cheap mixing when good rubber is cheap and I can get a good price for the articles without any haggling?" He then went on to say that during the war he was going to get a reputation for first-class goods, which would redound to the benefit of his business in the strenuous competition to be expected after the war. This certainly seems a sound policy to pursue and it is favored by the fact that oil substitutes and so many compounding ingredients have risen greatly in value.

GALOSHES.

The public has been warned by articles in the press that it is useless to expect to buy galoshes in the case of a heavy snow fall, as, for one reason or another, supplies will be very short this winter. This probably applies more particularly to the customary American imports. I note, however, fairly good supplies in the windows of rubber stores, prominently stamped "Made in England." In strict accuracy this description rules out the North British, the Waverly and the Victoria rubber companies' products. But whether the stamp should be Britain or England, I have reason to suppose that the Boston Rubber Co., among others of that ilk in America, will not be annoyed to know that their origin is definitely marked, and this because instead of the customary glossy black appearance they are mostly badly sulphured up. I hope it will not be accounted unto me for unrighteousness in drawing attention to this defect which is quite a new one because I have bought British-made galoshes in past years which have shown no signs of sulphuring up.

DISTINGUISHED VISITORS.

During a visit to munition centers in November in the West of England, the King and Queen were shown over the works of the Avon Rubber Co., Limited, at Melksham, by Captain Fuller, one of the directors, and expressed themselves as much interested in all that they saw.

On November 6, Senator Edward Heriot, the mayor of Lyons for the last eleven years, visited the works of Charles Macintosh & Co., Limited, at Manchester, where he was for a brief period the guest of the municipality in connection with the new Lyons fair, which is being promoted as another Leipzig fair. The visitor was shown over the works by Mr. Philip Birley, managing director, and followed the operations with interest. I am told that when asked afterward which department of this extensive works interested him most, the reply was the hollow ball manufacture.

THE WERNETH RUBBER WORKS, LIMITED.

I mentioned some time ago that this company had opened a branch works at Burton-on-Trent. This will now be the only address, the original works at Hyde, near Manchester, having been put up for sale at auction on November 14. Most of the machinery had been removed to Burton, a notable exception being a two-bowl calender, which it was expected would fetch a good price despite the fact that a two-bowl calender is somewhat out of date to-day and that it was bought second hand when installed seven years ago. This, however, is the time for selling old or unwanted rubber machinery. A stipulation with regard to the works was that if bought by a rubber manufacturer or used in any way in connection with the rubber trade, the word Werneth must not be used in connection with the business. Burton-on-Trent is offering special facilities for the establishment of new industries in the town, especially such as employ female labor. It need hardly be said that the main trade is beer, which affords little scope for female activities, at any rate until it is finished. A prominent concession to new works is the non-levying of rates for a period of seven years.

GAS MASKS IN INDUSTRY.

With regard to the interesting paragraph on this subject in the November issue of THE INDIA RUBBER WORLD, it is certainly quite true that their perfection for army purposes in the course of the war has conferred a boon, or, I should say, a potential boon upon the industry. The difficulty, however, is that in civil life their use cannot, or, at any rate, is not enforced upon the operatives who prefer to run any risk rather than undergo continuous discomfort. Again, there is no drill practice in their use, such as obtains among army recruits. It is a serious offense for a soldier to remove his mask without orders, while the difficulty all along in chemical works has been to get the operatives to act in this hygienic matter according to advice. Of course now that the masks for different vapors have been so much improved there may not be the same objection to their use, but I cannot help thinking that compulsion will have to take the place of persuasion if any real measure of reform is to be effected.

PROFITING BY EXPERIENCE.

In some quarters in England there is a tendency to laud certain actions of the United States with regard to war procedure and to draw comparisons unfavorable to ourselves. It is overlooked, however, that the States are not breaking new ground, but have our three years' experience to guide them. To refer to only one topic, the saving now being effected by the collection of discarded clothing and equipment and its utilization in the manufacture of new goods, or, at any rate, of goods which can be turned to useful account in other spheres, that what we are doing is considered of importance and interest is evident from the fact that full details, as far as they are available, are

being given in the reports of the United States consuls in England. Prominence has been given to the War Office enterprise at Dewsbury, where the material of old uniforms is treated and made available for remanufacture. Dewsbury is known as the shoddy town, its main business for many years past having been the production of material from which showy-looking new suits of clothes, sold retail at 25*s.* to 30*s.*, are made. Wool is here reclaimed on a large scale and in the case of union clothes the cotton is usually destroyed. The Dewsbury trade will not have anything to do with rubber and it has been due to bad reports from this quarter that certain rubber reclaimers gave up attempting to recover their wool from proofed textures.

### VULCANIZING BY ELECTRICITY.

The versatile R. B. Price, of the Rubber Regenerating Co., in United States patent No. 1,237,554, describes a method for the electrical vulcanization of rubber. In the very brief abstract of this patent, which is all I know about it, it is stated that sheet rubber is interleaved with homogeneous conducting material and a current of electricity of suitable intensity is passed through the latter for a length of time sufficient to vulcanize the rubber. This patent has aroused my curiosity and I shall look forward to reading further details. Presumably, the sheet rubber has sulphur in its composition. The reference to sheet rubber, by the way, indicates that the process, if it can be successfully and economically utilized outside the laboratory, is limited in its scope and will not be applicable to the numerous goods which are of some thickness.

### POISON IN THE FACTORY.

Now that the use of organic accelerators is becoming so universal, the discussion of their toxic effects on rubber operatives, which took place at the meeting of rubber chemists in connection with the American Chemical Society, is of very general importance. From what was said it appears that if the rubber manufacturers do not take steps to put their homes in order, the States will step in and take action. This eventuality is not likely to happen here as nothing in this way is ever done until there has been an inquest or two. I quite appreciate the remarks of the speaker who said that secrecy in the rubber works is a bar to a full discussion of the matter. It is just the same on this side, but I know of at least one case where aniline oil has led to illness. No precaution had been taken because the management was totally ignorant of the fact that danger was to be apprehended. Premonitive, premunitive and precautionary measures having been instituted in their works, I find that practically no ill effects are now experienced. Where operations are baleful to health it is a sound procedure to give an operative periodical change of work. This is not customary in England, though I have found it quite common on the Continent, and it is on the lines of this policy that the best prophylactic measures will probably be evolved.

### DENMARK'S RUBBER INDUSTRY.

Available figures for 1914 show that the rubber industry in Denmark at that date had not attained any prominence to speak of. In fact, there were only three rubber goods factories and one rubber regenerating factory. The three rubber factories employed in 1912, 227 workers, 114 women and 93 men, who produced goods valuing approximately 1.8 million kroner (1 kroner = $0.268). The goods included 152,000 bicycle tires, value 810,300 kroner; 2,000 tires for motor vehicles, value 38,000 kroner; 3,500 kilos technical and surgical goods, value 110,000 kroner; 17,000 meters rubber cloth, value 113,000 kroner; 4,000 meters rubber garments, value 113,000 kroner; and 127,500 kilos miscellaneous rubber goods, value 567,600 kroner. To make these goods the following materials were used: 64,000 kilos crude rubber, 39,600 kilos vulcanized rubber of which 9,000 kilos were bought vulcanized; 10,000 kilos factice; about 80,000 kilos material for filling and 2,700 kilos cloth for impregnating purposes. During 1913 the imports of all goods exceeded the output considerably. In 1905 only about 100,000 bicycle tires and tubes, amounting to some 460,000 kroner, were manufactured.

### RUPEE EXCHANGE ARRANGEMENTS.

Recent enactments prohibiting the exportation of gold have placed difficulties in the way of transacting business with the Far East. It will therefore be of interest to importers that the Secretary of the Treasury has made arrangements to supply to the importers of the United States rupee exchange for the purpose of satisfying the legitimate trade requirements of the country, by placing in the hands of the Federal Reserve Board the administration and apportionment of rupee drafts, and the Board has taken the necessary steps so that merchants requiring such remittances can make their applications through the Federal Reserve Bank of their district and receive allotments to cover their requirements. The amount of rupees now available is estimated as sufficient to cover immediate requirements of trade, and it is hoped that further arrangements can be made to take care of the future requirements as they arise from time to time. The question of gold export control has been given a new aspect by reason of the development of the larger problem of control of foreign trade in general with a view to discouraging the importation of unnecessary articles. Regulations relating to the licensing of foreign exchange transactions have also been worked out, and it is expected will be put into operation at an early date.

### BROWN BAST A FUNGUS, NOT A BACTERIUM.

W. N. C. Belgrave, Government Mycologist, Malaya, has discovered that Brown Bast is caused by a fungus and not a bacterium, as was at first thought. The fungus is claimed to be a new species of *Spongospora*, a member of the order of *Plasmodiophoracea*, therefore related to *Plasmodiophora*, the cause of "finger and toe" in turnip. It is in no way connected with *Phytophthora*. The trouble with this fungus is that it apparently does not affect the exterior of the tree which is unchanged, so that it is difficult to tell whether trees are affected or not without closer examination. Careful inspection shows that the cells of Brown Bast contain a foamy stuff, and only very thorough investigation discovers the fungi.

So far it appears that the fungus lives and originates in the soil, from which it finds its way into the tree—how is not yet known. The spores are of round formation and form a slime capable of conveying infection, either by way of the roots or by the tapping knife.

It has, therefore, been suggested that liming of the soil might act as a preventive, and disinfecting of the knives has also been recommended. Scraping of attacked trees is not advised, because of the added strain on the tree to form new bark over the open patch. All trees suffering from Brown Bast or burrs should be regarded with suspicion and left untapped.

In view of the threatening danger from rubber diseases, the chairman of the Malay Peninsula Agricultural Association recently proposed that planters and scientists from Malaya should hold a conference under the auspices of the P. A. M. and that all the staffs of private laboratories, besides men from Sumatra and Ceylon, should also be invited to attend and state their opinions.

### A NEW BARK DISEASE.

From the Uva district, Ceylon, comes the description of a new bark disease of the *Hevea*, which seems to be Brown Bast. The disease has not yet been observed in early stages and appears to kill the bark completely down to the wood. The diseased bark is brown and not claret colored. When dry, it is very hard and does not readily scale off. As in the case of Brown Bast, it is rarely discovered before the affected area is cut, when the bark is found to consist of a dry, dead layer. In

one instance, thought to be due to the same disease, the dead bark ultimately cracked and the trees exuded latex, which formed dozens of long streaks of black scrap down the stem. One tree, which was very badly diseased, the bark being dead all around the stem for a length of three feet, and the stem attacked by borers, had a normal head of leaves and yielded latex freely below the diseased area.

### TAPPING-HEIGHT AND BLACK THREAD ATTACKS.

H. C. Pratt, of the General Rubber Co., Medan, gives some interesting facts in connection with experiments tending to prove an apparent relation between the height of a tapping cut and black thread attacks caused by *Phytophthora Faberi, Maub.* It appears that the nearer the tapping cut is to the ground, the more liable is the tapping area to attack. Mr. Pratt writes:

The number of trees examined was nearly 19,000, situated in one block. Many of these trees were severely attacked by black thread while its progress was favored over the whole area, the land being low-lying and insufficiently drained.

It is to be expected that the lower part of the trunk will be more moist than the upper, and will remain moist for a longer period. This would render it easier for black thread to establish itself successfully, and progress more vigorously, on a tapping cut near the ground; but the contrast in conditions between say 9 and 18 inches is hardly so great that the marked difference in the percentage attacked at these two heights can be attributed entirely to this cause.

On cuts above 18 inches black thread not infrequently established itself, but the attack is usually less vigorous than on cuts lower down. It so happened that with the trees examined no cases above 18 inches existed. The interesting fact, however, is the consistent reduction in the percentage infected as the height of the cut from the ground increases above 3 inches.

### PLANTATION RUBBER IN INDO-CHINA.

The "Annales des Planteurs de Caoutchouc de l'Indochine," the bulletin of the Rubber Planters' Association of Indo-China, reports that the rubber exports from January 1 to June 1, 1917, amounted to 727,179 pounds, all of which went to France.

According to this journal, the cultivation of *Hevea* in Indo-China is developing from day to day, so that it bids fair to occupy a prominent position on the list of the world's rubber-producing countries. That this possibility is recognized by Mincing Lane is shown by the fact that such firms as Raoul Duval & Co., Havre, France, The Hagemeyer Trading Co., New York, and M. Gérondal have already offered their services.

#### EXPOSITION AT TAIWAN, FORMOSA.

The gratifying news is announced that the Rubber Planters' Association of Indo-China has been awarded the gold medal for its collaboration at the exhibition held in April, 1916, at Taipeh, Formosa. The rubber industry in these parts also found representation at the Bordeaux fair, held from September 1 to 16, 1917, when samples of the rubber sheet made in Cochin China were exhibited.

One of the most important planting companies, the "Société des Plantations d'Hévéas de Xa-Trach," reports that its production during the year 1916 justified expectations, having been 354,006 pounds. The average yield on this estate was 346 kilos per hectare, which is more than 300 pounds per acre.

### RATE OF BARK RENEWAL IN HEVEA.

Experiments of the effect of various tapping methods on bark renewal are described by L. E. Campbell in a recent issue of the "Bulletin of the Department of Agriculture," Ceylon.

It was shown that in trees tapped daily throughout the year bark renewal was poor as compared with trees tapped on alternate days and every third day. Good first renewals were obtained from those tapped by two cuts on one-quarter, one cut sloping upwards to the left on one-half, and two V cuts on one-half.

In the first case one-quarter was tapped each year, in the second and third cases tapping was transferred to the other side of the tree about every six months.

In the case of first tapping, if the renewed bark is 85 per cent of the thickness of the untapped bark within three years of tapping, the renewal may be considered to be good.

After first tapping, the renewed bark in only very exceptional cases becomes as thick as the corresponding untapped bark, there usually being a difference in thickness of about one millimeter.

In the case of the tapping on quarters, an area renewed most rapidly during the year following discontinuance of tapping on that quarter.

The bark of some old trees which had been severely tapped appeared to have an almost uniform thickness of about 5 millimeters, approximately 50 per cent of the thickness of untapped bark.

## NETHERLANDS EAST INDIAN NOTES.

#### PLANTATION RUBBER IN WEST JAVA.

P. E. KEUCHENIUS, returning from a visit to certain rubber plantations in West Java, states that the growth of the rubber tree in that district is on the whole more rapid than in East Java, due partly to early thinning out, further to planting only one crop on an estate, and finally to more regular rainfall. Trees are usually tapped when four years old.

Selective thinning out is the favorite method. The trees are numbered and their behavior registered, those thus shown to be poor producers being removed. It has been observed that when two trees stand next to each other in a row, one may have a moderate girth and yield much latex, while the contrary is true of the other. Frequently, after the removal of one or two nearby trees, however, the backward tree suddenly and permanently becomes a very good producer.

Trees that are to be removed have their tops taken off and are then tapped until they cease to give any latex, as it has been found that the yield from such trees is very abundant during the first month.

The Langen estate deserves special mention as being a remarkable example of a successful plantation on marshy land. From a planted area of almost 1,000 bouws, only 5 trees have been lost through *Fomes*, a disease usually prevalent in marshy districts. A contributing factor to this success has been the very extensive and excellent drainage system.

Pests and diseases are fairly rare and not very dangerous, thread cancer being one of the two most familiar diseases.

Tapping occurs daily, and in general two left cuts over one-quarter of the circumference are employed. Tapping methods vary considerably, and there is great lack of uniformity in other estate operations, planters there apparently being little influenced by scientific advice.

This lack of active interest has of late caused much complaint on the part of experiment stations in this district, and at a recent meeting of rubber planters at Bandoeng some rather pointed remarks were made.

It appears that funds are badly needed and that planters are not aiding as they should, stating that the charges are too high. The weakness of the excuse is evident when one considers that membership in both the West Java and Central experiment station costs only 0.4 cent per kilo of the prepared product.

#### CELEBES.

One of the fertile Dutch East Indian islands of which the average American has heard little is Celebes, yet day by day its importance in the production of such tropical crops as rubber, coffee, coconuts and rice is increasing. Many new roads and irrigation systems have lately been introduced and a railway line, of which there is great need, is being considered.

THE MANUFACTURE OF PNEUMATIC TIRES.

With characteristic thoroughness Dutch manufacturers in Java have undertaken many new industries. Solid tires have been made here for some time. Credit is entirely due the Nederlansch Indisch Coautchouc-fabrik, Bandoeng, Java, for the newest product, a pneumatic tire. Up to the present the rather small demand for pneumatic tires has been supplied from abroad.

RUBBER EXPORTS.

The exports of rubber from Belawan, Sumatra, covering the period January to July, 1917, amounted to 16,060,000 pounds against 9,460,000 for the same period the year before. Of these amounts 11,000,000 pounds went to America during the seven months in 1917 and 4,400,000 during 1916. The shipments to the new markets of Canada, Hongkong and Japan were 6,600, 13,200 and 19,800 pounds respectively.

The following table is interesting as showing the growth of the Javanese crude rubber trade with the United States:

| | 1913. | 1914. | 1915. | 1916. | First half of 1917.* |
|---|---|---|---|---|---|
| Ficus .....*pounds* | ..... | 2,200 | ..... | 33,000 | 2,200 |
| Hevea ..... | 44,000 | 409,200 | 7,339,200 | 17,751,800 | 17,417,400 |
| Ceara ..... | ..... | ..... | 13,200 | 15,400 | ..... |
| Castilloa ..... | ..... | ..... | ..... | 24,200 | 11,000 |
| Totals ..... | 44,000 | 411,400 | 7,352,400 | 17,824,400 | 17,420,600 |

*Estimated figures.

DR. J. G. C. VRIENS LEAVES THE RUBBER INDUSTRY.

Dr. J. G. C. Vriens, technical adviser to the Rubber Planters' Association on the East Coast of Sumatra, has not only resigned this position, but has left the rubber planting industry altogether. Rubber planters of this district lose in him a valuable adviser who will be hard to replace.

## THE SITUATION IN MALAYA.

*By Our Regular Correspondent.*

SEPARATED by so many thousands of miles from the actual scene of the great world struggle, Malaya can hardly be expected to realize to the full what it means. Nevertheless, men and women are indefatigable in their efforts to find ways and means by which funds for the soldiers and Red Cross may be raised. Recently the brilliant idea of holding a one-day rubber exhibition and fête at Johore Bahru, Johore, was carried out. Twenty-seven estates sent in exhibits, and, instead of prizes, diplomas were awarded. The Sultan of Johore opened the exhibition and, assisted by rubber experts from Singapore, distributed the diplomas. The Sungai Dangar estate won the first and second for sheet rubber, with fine exhibits, which the manager and his staff presented to the Red Cross. The first and second diplomas for fine crêpe were won by Segamat and Tebrau, respectively. At the auction which afterward took place, top market prices were paid, and the Red Cross fund received about $5,500.

RUBBER FACTORIES IN THE FEDERATED MALAY STATES.

In a recent editorial the "Malay Mail" calls attention to the attitude of both the Australian and the Japanese Governments, which are very substantially aiding in the development of the young industries in their respective territories. It says: "Japan has established rubber factories for the manufacture of rubber goods. Why should there not be such a factory on the spot where the raw material is produced? It would have the Indian, Australian and China market close at hand. The Dunlop people might be induced to start such a factory."

SINGAPORE AS A RUBBER MARKET.

There seems to be but one opinion as to the position Singapore takes as a plantation rubber market—the first. This has been brought about by freight restriction, for the leading European planters can no longer send their entire output to London, as was their custom. Nowadays only such supplies as are actually needed for war purposes go to the United Kingdom, while practically all the rest go direct to America.

Recent reports indicate that the quantity of rubber sold at the Singapore auctions during 1916 showed an increase of 25 per cent over the total quantity sold during the four years 1912-15, while for the period January 1 to June 30, the quantity dealt with was double that for the years 1912-15.

The facilities for ships offered by the harbor of Singapore are undoubtedly the finest in the East. The Singapore Harbor Board has a total deep-water wharfage of 9,822 feet, and extensive improvements have been going on during the year.

IMPORTS AND EXPORTS.

Both imports and exports of crude rubber show marked increases, as follows:

| Plantation Rubber. | 1915. Value. | Tons. | 1916. Value. |
|---|---|---|---|
| Imports ..... | $28,725,418 | 41,842 | $48,506,699 |
| Exports ..... | 44,122,824 | 59,316 | 74,308,447 |

The totals by country were:

| Imports: | 1915. Value. | 1916. Value. |
|---|---|---|
| Plantation rubber— | | |
| British North Borneo and Sarawak..... | $483,000 | $1,160,000 |
| Federated Malay States..... | 19,857,000 | 30,005,000 |
| Non-Federated Malay States..... | 5,710,000 | 10,959,000 |
| Dutch East Indies..... | 2,439,000 | 6,546,000 |
| Gutta percha— | | |
| Sarawak ..... | $38,000 | $29,000 |
| Dutch East Indies..... | 405,000 | 302,000 |
| Gutta jelutong— | | |
| Sarawak ..... | $341,000 | $410,000 |
| Dutch East Indies..... | 513,000 | 504,000 |

Exports of crude rubber were distributed among the following countries:

| | | |
|---|---|---|
| Plantation rubber: | | |
| To— | | |
| Canada ..... | ..... | $885,000 |
| United Kingdom ..... | $13,745,000 | $15,564,000 |
| France ..... | 57,000 | 635,000 |
| Japan ..... | 1,448,000 | 2,812,000 |
| Russia ..... | 1,992,000 | 6,716,000 |
| United States ..... | 25,600,000 | 47,291,000 |
| Gutta percha: | | |
| To— | | |
| United Kingdom ..... | $584,000 | $558,000 |
| France ..... | 1,000 | 8,000 |
| Italy ..... | 31,000 | 1,000 |
| United States ..... | 225,000 | 261,000 |
| Gutta jelutong: | | |
| To— | | |
| United Kingdom ..... | $59,000 | $99,000 |
| France ..... | 14,000 | 1,000 |
| United States ..... | 634,000 | 695,000 |
| India rubber and Borneo rubber— | | |
| To— | | |
| United Kingdom ..... | $265,000 | 421,000 |
| Japan ..... | 38,000 | 112,000 |
| United States ..... | 79,000 | 27,000 |

The totals for manufactured rubber were:

| | Imports. 1915. | Imports. 1916. | Reexports. 1915. | Reexports. 1916. |
|---|---|---|---|---|
| Tires .....$ | 1,277,204 | $1,050,347 | $899,751 | $660,653 |
| Other rubber goods..... | 70,547 | 110,271 | 107,976 | 146,879 |

The imports and reexports of rubber manufactures by country were:

| Imports: | 1915. Value. | 1916. Value. |
|---|---|---|
| Tires: | | |
| From— | | |
| United Kingdom ..... | $326,000 | $419,000 |
| Italy ..... | 240,000 | 205,000 |
| Japan ..... | 588,000 | 258,000 |
| United States ..... | 9,000 | 91,000 |
| Other rubber goods, including tires: | | |
| From— | | |
| United Kingdom ..... | $377,000 | $479,000 |
| France ..... | 77,000 | 58,000 |
| Italy ..... | 240,000 | 205,000 |
| Japan ..... | 588,000 | 292,000 |
| United States ..... | 9,000 | 96,000 |
| Reexports: | | |
| Rubber goods, including tires: | | |
| To— | | |
| Federated Malay States..... | $380,000 | $335,000 |
| Dutch East Indies ..... | 370,000 | 336,000 |
| Siam ..... | 56,000 | 60,000 |

## BRAZILIAN NOTES.

BRAZIL has at last openly declared herself and joined the Allies against the common foe. As might have been expected, the breaking off of the relations between Germany and Brazil has aroused a good deal of enthusiasm among people and press; daily the number of volunteers for the army and for Red Cross work swells; new fighting squads are formed, stirring speeches made and patriotic processions organized.

Of course the German population is not feeling particularly comfortable, attacks on their properties being of quite frequent occurrence. Recently the offices of the exporting firm of Seligmann & Co. were attacked and the firm's sign torn from a door to which it had been attached. Of more importance are the governmental decrees against the German inhabitants. According to latest estimates, the Banco Allemão Transatlantico and the Brazilianscbe Bank Deutschland, both of Sao Paulo, had capitals of 13,982,317$921 and 46,185,094$799, respectively. The government has placed these and other banks under supervision to prevent any German capital leaving Brazilian territory. All Germans employed in any capacity whatever by the Government have been discharged and many commercial houses are following suit. German schools have been closed, Germans will be forbidden to marry Brazilians, and thousands of others have been interned. It has been proposed to make these interned persons do some kind of work, to the benefit of the country.

Under these circumstances it is hard to believe that the Lloyd Brazileiro will continue to give shipping space to enemies. From March 29, 1916, to October 7, 1917, the period during which the black list has been in force, enemy firms exported 6.3 per cent of a total of 50,277 tons of rubber by Lloyd vessels.

### UNIFORM RUBBER EXPORT TAX.

A decree modifying that of May 23 empowers the Paraná sounding the alarm in connection with Brazilian commerce. It points out that the varying taxes imposed on imports and exports in different states of the country are extremely harmful, especially in the case of rubber, which is really the life and mainspring of industry and commerce in Brazil. As a remedy, it suggests a uniform tax for the whole country and for rubber, a uniform tax in the Federal states, Amazonas, Para, Matto-Grosso and neighboring republics.

### PROJECTED ENTERPRISES.

A decree modifying that of May 23 empowers the Paraná State Government to undertake port improvement works at Paranaguá.

These works will include the opening of two channels, one 2,000 meters long, 300 meters wide, and 8 meters deep at low tide, and the other 3,600 meters long, 300 meters wide and 8 meters deep, and the construction of a wharf 550 meters long. Extensive dredging, paving and drainage works, rail connections, warehouse construction and electrical installations are included in the project.

The works are to be commenced within a period of three years from the date of the registration of the contract by the Tribunal of Accounts and must be concluded within a further five years.

Furthermore, the Minister of Public Works has conferred with American bankers regarding the arrangements for the construction of a railway between Paita and Maranoa. This railway will complete the Pacific Brazil-Atlantic route which is of the utmost importance to the world's commerce and to the economic development of Brazil and Peru.

### TRADE NOTES.

The firm of Suarez Hermanos & Co., Limited, Para, which was dissolved in July, 1917, has been reconstructed under the name Suarez, Filho & Co. The new firm will continue the same branch of business, with Nicolás Suarez, Jr., and Alfredo Ufenast as partners; Nicolás Suarez, Sr., silent partner and Pedro José Agudo, procurator.

## RUBBER TRADE INQUIRIES.

*THE inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The editor is therefore glad to have those interested communicate with him.*

[353.] A subscriber asks for addresses of companies selling celluloid punch presses, tools, etc.

[354.] An inquiry has been made requesting information on machinery for repairing tubes and covers.

[355.] A correspondent asks the names of manufacturers of solid tire press builders.

[356.] An inquirer wishes to know where he can purchase aluminum branding plates.

[357.] A user of airplane materials asks for names of mills manufacturing balloon and airplane fabrics.

[358.] A correspondent requests names of concerns handling aldehyde ammonia.

[359.] A subscriber inquires for a color for recoloring finished and vulcanized rubber gloves.

[360.] A reader asks for the name of the manufacturer of the Reeves variable safety counter-shaft.

(361.) A subscriber wishes to know where he may secure a plastometer.

### TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

*Reserved addresses may be obtained from the Bureau of Foreign and Domestic Commerce, its district or cooperative offices. Request for each opportunity should be on a separate sheet, and state opportunity number.*

[25,787.] A firm in Nicaragua wishes to receive catalogs, etc., from manufacturers and exporters of drug sundries.

[25,789.] A man in England wishes to buy rubber or celluloid combs, in metal cases; rubber or celluloid pocket combs, together with small manicure files, both fitted in leather or leatherette case.

[25,792.] An agency is desired by a man in France for the sale of insulating materials.

[25,799.] A man in Mexico is in the market for novelties and notions such as rubber balls, tobacco pouches, pocketbooks, etc.

[25,819.] A firm in Scotland is in the market for rubber stamp goods, sign markers, daters, etc.

[25,830.] A company in Italy desires to purchase corsets of silk and elastic fabric, and silk garters for ladies.

[25,853.] A firm in Canada desires to be put in communication with American manufacturers of raincoats.

[25,953.] An agency on a commission basis is desired by a man in England for the sale of oilcloth, waterproof cloth, and linoleum.

[25,968.] A firm in Italy desires to purchase india rubber articles as tubes, rubber sheets for hospitals, and woven fire hose.

[25,978.] An agency on a commission basis is desired by a firm in India for the sale of rubber heels.

[26,012.] A man in Spain wishes to buy, or secure an agency for the sale of asbestos packing of all kinds.

[26,025.] A man in Scotland is in the market for large quantities of lithopone for use in the manufacture of linoleum.

[25,803.] A firm in Italy desires to purchase general insulating materials.

[25,804.] An association in Switzerland desires an agency for the sale of general merchandise, including rubber goods.

[93,845.] A firm in British East Africa, that can supply 50 tons of rubber annually, desires to form connections in the United States.

# Recent Patents Relating to Rubber.

## THE UNITED STATES.

ISSUED NOVEMBER 13, 1917.

No. 1,246,050. Tool for removing and replacing vehicle tires. N. D. Chase, assignor of one-half to F. Frame and A. Thomas—all of Hornbrook, Cal.

1,246,117. Recoil pad. P. J. Krueger, Blue Island, Ill.

1,246,131. Combined tire valve and pressure governor. G. F. Marston, Pomona, Cal.

1,246,231. Printer's blanket. W. M. Carmichael, Atlanta, Ga.

1,246,232. Fountain pen. W. L. Chapman, Brooklyn, N. Y.

1,246,292. Teat cup for milking machines. A. C. Macartney, assignor to Pine Tree Milking Machine Co.—both of Chicago, Ill.

1,246,324. Key-block demountable truck tire. W. J. Roepke, assignor to C. B. McCoy—both of Los Angeles, Cal.

1,246,360. Casing shoe. F. Tuttle and L. T. Hall—both of Houston Heights, Texas; said Tuttle assignor to said Hall.

1,246,678. Demountable rim. J. B. Stroud, Paris, assignor of one-fifth to G. B. Evans, Dallas—both in Texas.

1,246,736. Automobile tire. W. F. Forsell, Hudson, Wyo.

ISSUED NOVEMBER 20, 1917.

1,246,838. Tire-saving device for automobiles. M. P. Appell, near Galva, Ill.

1,246,870. Heel. D. L. Burnell and L. J. Eberle—both of Nelsonville, Ohio.

1,246,929. Calked sole. J. H. Jasper, Detroit, Mich.

1,246,948. Bathing cap. W. T. Sears, New York City.

1,247,014. Rubber stamp of the bank type. A. H. Rogers, Springfield, Mass.

1,247,037. Fountain pen. H. J. Upton, Somerville, assignor to Vaughn-Upton Co., Boston—both in Massachusetts.

1,247,088. Spraying instrument. T. A. De Vilbiss, assignor to The De Vilbiss Manufacturing Co.—both of Toledo, Ohio.

1,247,089. Inflatable finger-nail polisher. J. H. Devlin, Paris, France.

1,247,169. Fountain pen. F. E. Storer, Somerville, assignor to Davidson Rubber Co., Boston—both in Massachusetts.

1,247,207. Detachable tread for tires. M. Bell, assignor of one-third to L. H. Griffin and one-third to W. F. Warren—all of Ardmore, Okla.

1,247,222. Chin supporter. Z. C. Cauffman, Seattle, Wash.

1,247,262. Tire. F. F. Green, Coalgate, Okla.

1,247,547. Portable pad. P. C. Ko Eune, Philadelphia, Pa.

1,247,560. Tire protector. L. Meyers, I. Meyers and H. Weaderhorn—all of New York City.

ISSUED NOVEMBER 27, 1917.

1,247,658. Balloon fabric. J. R. Gammeter, Akron, Ohio.

1,247,684. Wheel comprising a clincher rim and carrying a pneumatic tire. L. U. Hurlburt, Syracuse, N. Y.

1,247,688. Abdominal belt of elastic webbing. E. A. Kann, New York City.

1,247,714. Eraser. W. B. Pershing, South Bend, Ind.

1,247,733. Game apparatus which includes an elastic ball. J. T. Simpson, Newark, N. J.

1,247,754. Rubber watch-bag. L. E. F. Wachter, New York City.

1,247,789. Demountable rim. T. F. Burns, assignor of one-half to R. P. Cruse—both of Oklahoma, Okla.

1,247,882. Sleeping or military valise. J. Row, London, England.

1,247,955. Artificial bait comprising an elongated elastic member. W. J. Grube, Delaware, Ohio.

1,247,984. Elastic resilient core for automobile tires. H. Meltzer, New York City.

1,248,013. Float apparatus with impermeable cloth covering for walking on the water. L. Risso, Genoa, Italy.

1,248,045. Armored inner tube for pneumatic tires. L. Wenzel, Jr., Pittsburgh, Pa.

1,248,089. Pneumatic tire. S. T. Davis, assignor of one-half to J. S. Demetriou—both of Pittsburgh, Pa.

1,248,149. Elastic vehicle tire. J. Monson, New York City.

1,248,350. Demountable rim for vehicle wheels. P. S. Larson, Beloit, Wis.

1,248,353. Vehicle wheel tire. J. L. Lillich, Carbon Hill, Ala.

1,248,386. Split demountable rim. E. Oliver, Daytona, Fla.

REISSUES.

14,397. Fountain pen. S. Josselyn, Atlantic, assignor of one-half to S. C. Crocker, Boston—both in Massachusetts.

## THE DOMINION OF CANADA.

ISSUED AUGUST 21, 1917.

178,727. Fitting form comprising an inflating bag. J. O. H. Roy, Montreal, Canada.

178,809. Nursing bottle and nipple. M. C. Coombs, New York, N. Y., U. S. A.

178,810. Nipple for nursing bottles. M. C. Coombs, New York, N. Y., U. S. A.

178,902. Pneumatic tire. A. A. Haines, assignee of J. E. Haines—both of Toronto, Canada.

178,910. Rubber heel. F. Bernstein, Chelsea, Mass., U. S. A.

**Chemical Patents will be found on pages 211-212.**

## THE UNITED KINGDOM.

ISSUED OCTOBER 31, 1917.

109,231. Rubber rings in a chuck for holding light articles during polishing. W. Connolly, Polefield House, Blackley, Manchester.

109,300. Tire rim. J. Cox, Arthur street, Birmingham.

109,331. Telephone receiver having one or more ebonite rings. T. Chalmers, 81 Underwood Lane, West street, Crewe, Cheshire.

109,349. Rubber air bag for hat-pressing machines. A. H. Moseley and C. Macintosh & Co., Cambridge street, Manchester.

109,413. Protective waterproof sole for boots and shoes. J. C. Candy, 20 Westbourne Arcade, Bournemouth.

ISSUED NOVEMBER 7, 1917.

109,455. Block tire. T. Dunn, 63 Tierney Road, Streatham Hill, London.

109,495. Tire with rim enclosing air tubes or chambers. W. J. Vincent, 20 Working street, Cardiff.

109,615. Artificial teeth with sponge rubber in the plate hollow. A. C. S. Angel, 1 Skoubogade, Copenhagen, Denmark.

ISSUED NOVEMBER 14, 1917.

109,666. Repairing device for air-tubes comprising a rubber patch. F. W. Mead, The Harbour, Bidford-on-Avon, Warwickshire.

109,678. Diver's dress. R. H. Davis, 187 Westminster Bridge Road, London.

109,703. Rubber-proofed cuff for diver's dress. R. H. Davis, 187 Westminster Bridge Road, London.

109,704. Diver's dress. R. H. Davis, 187 Westminster Bridge Road, London.

109,761. Sleeping-bags. M. H. Slater, East Main and Cemetery streets, East Village, Webster, Mass., U. S. A.

109,765. Fire-hose. W. J. Mellersh-Jackson, 28 Southampton Buildings, London. Fabric Fire Hose Co., New York City, U. S. A.

ISSUED NOVEMBER 21, 1917.

109,863. Reservoir pens. W. T. K. Calton, 76 Newgate street, London.

109,893. Diver's glove. R. H. Davis, 187 Westminster Bridge Road, London.

109,899. Reservoir pens. R. Larsen, 47 Bohmensgade, Copenhagen.

## THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION).

484,062. (January 3, 1917.) Elastic tire for all vehicles. R. de Mauni.

484,115. (January 8, 1917.) Improvements in tire valves. T. Sloper.

484,122. (January 9, 1917.) Improvements in tires for automobiles and other vehicles. C. V. Boys.

484,127. (January 9, 1917.) Elastic wheel. C. A. Whale and J. H. Black.

484,257. (January 16, 1917.) Rim with air chamber and solid tire with tread. M. Cuypers.

## AUSTRALIA.

DATES OF APPLICATION.

1,311 (June 21, 1916). Dust extractor having a rubber ring. Lamson Store Service Co., Limited, assignee of W. R. Miller, New South Wales.

1,538 (July 18, 1916). Tire with cover vulcanized to and supported on a continuous rubber core having closely disposed transverse ribs forming air-tight pockets for ammonium carbonate or gas. A. J. Ostberg and A. Kenney, Victoria.

1,916 (October 13, 1916). Invalid's crutch having rubber buffers. W. J. Connell, Victoria.

1,960 (September 4, 1916). Life saving jackets having skirt pads suspended from breast pads. H. L. Ziman, New South Wales.

2,125 (September 20, 1916). Life saving jacket having material extending over the shoulders. G. O. D. Chapman, New South Wales.

2,610 (November 20, 1916). Hot water or ice bottle with device for allowing the insertion of compresses. T. W. Cotton, assignee of J. W. Appleton, New York, U. S. A.

2,611 (November 20, 1916.) Pneumatic tire with a groove in the cover to receive a new tread when the old one is worn. E. Baldwin, Victoria.

3,013 (January 16, 1917). Storage batteries. J. M. Flannery, Pennsylvania, U. S. A.

3,014 (January 16, 1917). Storage batteries. J. M. Flannery, Pennsylvania, U. S. A.

3,851 (May 3, 1917). Pneumatic tire reinforced with band of raw hide enclosed in gutta percha, unvulcanized rubber and canvas impregnated with balata. A. A. Crozier, England.

3,950 (May 11, 1917). Tire reinforced with annular flat laminated band of layers of rubbered canvas, vulcanized rubber and balata covered canvas. Featheredge covering of the same materials secured to inside of tire. A. A. Crozier.

4,013 (May 17, 1917). Automobile wheel having metal disks to which the rim is secured by a ring of springs instead of spokes. J. L. Kunz, Wisconsin, U. S. A.

**Machinery and Process Patents on pages 216-217.**

## INDIA.

### DATES OF APPLICATION.

2,876 (January 3, 1917). Improved resilient tire for automobiles and other vehicles, comprising combination pneumatic and spring chamber. A. A. Crozier.

2,877 (January 3, 1917). Improved resilient tire for automobiles and other vehicles, comprising combination pneumatic and spring chamber. A. A. Crozier.

2,881 (January 3, 1917). Improved resilient tire for automobiles and other vehicles, comprising combination pneumatic and spring chamber. A. A. Crozier.

2,882 (January 3, 1917). Improved resilient tire for automobiles and other vehicles, comprising combination pneumatic and spring chamber. A. A. Crozier.

2,888 (January 9, 1917). Resilient tire for vehicle wheels. G. Kanter.

2,943 (February 13, 1917). Brush puncture protector for pneumatic tires. Mrs. B. E. Oakley and T. A. Harrison.

2,948 (February 19, 1917). Improvements in rain shields for rubber trees and the like. L. C. St. G. Carey and R. M. Ash.

2,970 (March 1, 1917). Improvements in elastic tires. R. Fukuda.

3,016 (April 17, 1917). Improvements in or relating to pneumatic tires for automobiles and other vehicles. A. A. Crozier.

## TRADE MARKS.

### THE UNITED STATES.

99,696. The hyphenated word TIRE-DOH—a compound for repairing rubber articles and cement to be used therewith. Atlas Auto Supply Co., Chicago, Ill.

101,243. The words HONEY DEW—chewing gum. The Shelby Supply & Manufacturing Co., Cleveland, Ohio.

103,052. The word WECO—belting, hose, machinery packing, non-metallic tires, and air tubes for pneumatic tires. Weaver Ebling Automobile Co., New York City.

105,583. The words BOB WHYTE—canvas-uppered rubber soled footwear. The Top Notch Co., Inc., College Point, N. Y.

106,135. The word SHUKON—rubber boots with leather tops. The B. F. Goodrich Co., New York City.

106,138. The word TOBASCO—footwear composed partly of rubber known as arctics. The B. F. Goodrich Co., New York City.

106,139. The word WHITEMOC—rubber shoes. The B. F. Goodrich Co., New York City.

106,213. Representation of a track runner—rubber vehicle tires. The Marathon Tire & Rubber Co., Cuyahoga Falls, Ohio.

106,554. Representation of ribbon-tied olive leaves in form of conventional wreath broken at top, space occupied by conventionalized fleur-de-lis and crown with word EXCELLO beneath, within wreath—rubber coats, suits, overalls, aprons, hats, caps, slickers, capes, ponchos and leggings. B. A. Cohen, New York City.

106,855. The word DE-CHEM-CO represented by the letter D with the remainder of the word within it, separated into three syllables, one over the other, by hyphens—tire-puncture repairing or sealing powder. Defiance Chemical Co., Norfolk, Virginia.

### THE DOMINION OF CANADA.

22,845. The word TEXTAN—soles composed partly of rubber for boots and shoes. The B. F. Goodrich Co., New York, N. Y., U. S. A.

22,864. The word GUIDE—soft rubber goods, such as vehicle tires, tire tubes, reliners, patches, water bottles, fountain syringes, invalid rings, ice bags, tobacco pouches, football bladders and accessories. The F. E. Partridge Rubber Co., Limited, Guelph, Ontario, Canada.

22,865. Representation of an inflated rubber tire with a partridge standing erect within the circle—soft rubber goods, such as vehicle tires, tire tubes, reliners, patches, water bottles, fountain syringes, invalid rings, ice bags, tobacco pouches, football bladders and accessories. The F. E. Partridge Rubber Co., Limited, Guelph, Ontario, Canada.

### THE UNITED KINGDOM.

378,155. A label representing a flag bearing the words ALL BRITISH, THE RAINSTER, WEATHERPROOF—rainproof and waterproof garments. A. Oppenheim, trading as Oppenheim & Co., Britannia Mills, Sackville street, Manchester.

379,545. The word KNOCKOUT—india rubber tires. The British Empire Motors, Limited, 115 Fulham Road, London, S. W. 3.

379,570. Representation of a sunburst, with an airplane with the word "Progress" beneath it outlined across the face of the sun—steam and hydraulic packing and hose, dressing for belting, electrical insulating preparations of asbestos or mica, jute or hemp rope, vulcanized fiber in sheets, rods, tubes, valves and washers. W. Deller, trading as Deller's Asbestos & Stores Co., 103 High street, Battersea, London, S. W. 11.

379,640. Representation of yawning child in sleeping garment, holding tipped candle in left hand and supporting self-high tire with right—rubber tires. The Fisk Rubber Co. (a corporation organized under the laws of the State of Mass.), Chicopee Falls, Hampden Co., State of Mass., U. S. Address in the United Kingdom: c/o Marks & Clerk, 57-8, Lincoln's Inn Fields, London, W. C. 2.

379,641. The words GOLD BOND arranged over each other so as to suggest a circle—rubber tires. Same manufacturer and address in United Kingdom as 379,640.

379,959. The word METRITE—india rubber soles for boots and shoes sold unattached. T. Brayshaw, trading as The Metropolitan Rubber Co., 16-18 Bromells Road, Clapham, London, S. W. 4.

380,005. The word KEDS—rubber, leather and fabric footwear. United States Rubber Co. (a corporation organized under the laws of the State of N. J.), 1790 Broadway, City and State of New York, U. S. Address in the United Kingdom: c/o Haseltine, Lake & Co., 28 Southampton Buildings, London, W. C. 2.

### FRENCH REPUBLIC.

17,826. Representation of a nipple having an ellipse, in which are enclosed the words RABBE and DEPOSÉ above and below a band bearing the words CAOUTCHOUC PUR—nipples of rubber. Joseph Fages, 5-7-9 rue d'Oran, Marseille.

25,079. Representation of a round rubber heel, having the words LONDON and SPECIAL inscribed on bands in the upper and lower sections, respectively—rubber heels. Hooley Hill Rubber & Chemical Co., Hooley Hill, near Manchester, England.

25,101. The hyphenated word KAY-BEE—notions, including dress shields. Kirby Beard & Co., Limited, Bradford street, Birmingham, England.

25,108. Representation of a globe having the word GLOBE written across it—tires, tubes, belting, hose, valves and all other rubber goods. The Globe Rubber Tire Manufacturing Co., Inc., Trenton, New Jersey, United States of America.

25,111. The word THERMOID, in which the T stroke connects the first and last letter—tires, tubes, and other rubber goods. The Thermoid Rubber Co., Hamilton, New Jersey, United States of America.

25,131. The word RONOLEKE—rubber goods, including hot water bottles, air and water mattresses, pillows, etc. Campbell, Achnach & Co., Limited, 110 Commerce street, Glasgow, Scotland.

169,675. The word MICHEL'S—cycles, automobiles, etc., and their accessories. Laurent-Séraphin Michel, 32 rue Saint Antoine, Paris.

169,677. The word PORTLAND'S—cycles, automobiles, etc., and their accessories. Laurent-Séraphin Michel, 32 rue Saint Antoine, Paris.

169,678. The word PRINTEMPS—cycles, automobiles, etc., and their accessories. Laurent-Séraphin Michel, 32 rue Saint Antoine, Paris.

169,679. The word INGIVAS—cycles and accessories.. Laurent-Séraphin Michel, 32 rue Saint Antoine, Paris.

169,681. The words ROYAL WILSON—cycles and accessories. Laurent-Séraphin Michel, 32 rue Saint Antoine, Paris.

169,718. The word ANZAC—boots and shoes, balloons and all kinds of sporting goods. A. A. Tunmer & Co., 45-47 rue Vallier, Levallois-Perret.

169,731. The words DE LA CORNICHE D'OR—rubber goods. Léon Montier, 38 rue de l'Université, Paris.

169,732. The words MIMOSÉE DE—rubber goods, Léon Montier, 38 rue de l'Université, Paris.

169,733. The words MIMOSÉES DE CANNES—rubber goods. Léon Montier, 38 rue de l'Université, Paris.

169,734. The words MIMOSÉES DE LA CÔTE D'AZUR—rubber goods. Léon Montier, 38 rue de l'Université, Paris.

169,735. The words MIMOSÉES DE L'ESTEREL—rubber goods. Léon Montier, 38 rue de l'Université, Paris.

### AUSTRALIA.

20,425. The words RED RAVEN—Overshoes. The United States Rubber Co., Limited, 47 Farringdon street, London, England.

21,413. Representation of a rectangle, the smaller, striped, lower section separated from the upper by a curved line on which is a large black section having the initials F. S. Co. above it—bottle stoppers of vulcanite and similar material. Firm trading as G. H. Elliott, 45 Rathdown street, Melbourne, Victoria, and as Frankston Springs Co., 34 Drummond street, Melbourne, Victoria.

21,557. The word MANDOR—belting of rubber and of rubber and fabric. Hamilton Abert, care of Frank R. Perrot, 204 Clarence street, Sydney, New South Wales.

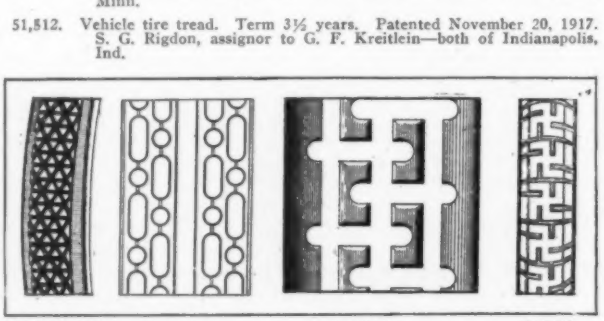
21,686. The word HURCULACES—dress shields. Faire Bros. & Co., Limited, 2 Southampton street and St. George's Mills, Leicester, England.

## DESIGNS FOR TIRES.

### THE UNITED STATES.

51,499. Tire tread. Term 14 years. Patented November 20, 1917. C. B. Klopfenstein, assignor to C. L. Archer—both of Minneapolis, Minn.

51,512. Vehicle tire tread. Term 3½ years. Patented November 20, 1917. S. G. Rigdon, assignor to G. F. Kreitlein—both of Indianapolis, Ind.



51,499 51,512 51,522 51,528

51,522. Vehicle wheel tire. Term 14 years. Patented November 27, 1917. M. Braley, assignor to The Akron Biltwell Tire & Rubber Co.—both of Akron, Ohio.

51,528. Tire tread. Term 14 years. Patented November 27, 1917. J. W. Maguire, assignor to The Brunswick-Balke-Collender Co.—both of Chicago, Ill.

# Review of the Crude Rubber Market.

*Copyright*, 1918.

### NEW YORK.

INFLUENCED by steadily accumulating stocks at Pacific ports and the entire absence of buying interest, the crude rubber market, with minor fluctuations, steadily declined during the first two weeks of the past month. Stimulated by low prices, considerable business was transacted between dealers for all positions up to June of next year. About the middle of the month the buying of short sellers to cover December contracts increased the demand for spot rubber, in which the manufacturers took part, and prices moved upward as the month progressed. Moderate transactions were reported with the mills and a fair business was transacted between dealers. Spot rubber soon became scarce, due to the active demand that followed and the slowness of overland freight arrivals, caused by severe weather conditions. This has resulted in small stocks of all descriptions and a consequently strong market. During the last week of the month the usual holiday quiet prevailed, with little business being done other than between dealers. The market tone was firm and plantation prices were about the same as on the first of the month, while Paras had advanced materially.

PLANTATIONS. A good volume of business has been transacted in all grades and for all positions. On December 1, First latex crêpe, spot, was 56 cents; Smoked sheet ribbed, spot, 55 cents; futures being variously quoted at ½ to 1 cent lower. The market reached the lowest point in the month on December 14, when First latex crêpe, spot, was 53½ cents; Smoked sheet ribbed, 52½ cents; with January-June positions for both grades at the same figures. Prices then advanced and quotations on December 27 were: First latex crêpe, spot, 55½ cents; January-June, 55 cents; Smoked sheet ribbed, 54½ cents, January-June, 54 cents.

PARAS. The reported action of the Brazilian government in establishing a minimum price, said to be 66 cents, on Upriver fine had a strengthening effect on the market. Upriver fine was 55 cents on December 1 and started downward in the general market decline, but the scarcity of spot stocks and persistent valorization rumors supported values that steadily rose during the month. On December 27, Upriver fine was quoted 61 cents, Upriver coarse, 39½, and caucho ball, 39 cents. The fact that stocks are small at all shipping points gives added strength to the market.

AFRICANS. The market has been quiet and trading limited in this material, largely due to the comparatively high prices prevailing on the London market. Rio Nunez ball and also sheets and strings are in demand, but supplies are unobtainable. The tone is firm and prices are higher.

CENTRALS. These were quiet and uninteresting earlier in the month, but the activity in caucho ball during the last two weeks resulted in an active demand for all grades of Centrals. Old stocks have been drawn upon, as arrivals have been few and prices on all grades have advanced since our last report.

### LONDON.

The fact that Singapore spot prices are lower than London, even allowing for the addition of freight and insurance charges, has resulted in further American buying for direct shipment. Large stocks are reported at London and Liverpool, thus providing against any delay in arrivals that may arise through shortage of tonnage at Singapore.

The low prices that have ruled during the past month attracted considerable buying interest that was sufficient to support the market against prevailing conditions and values have not declined materially. First latex crêpe, spot, was 29¾*d.* and Smoked sheet rubber, spot, 29*d.*, on December 1, and on December 27 these grades were quoted, 29½*d.* and 28½*d.*, respectively.

STATISTICS. London and Liverpool imports for October were 9,072,900 pounds, value, £1,128,927, compared with 4,700 tons, value £1,294,030, for September. Exports for October were 7,038,200 pounds, value, £923,206, compared with 1,870 tons, value, £543,535, for September.

### SINGAPORE.

The accumulation of stocks and the inability to ship freely are the two principal factors ruling the Singapore market. That buyers have taken advantage of the ruling low prices is evidenced by the activity and demand shown at the December auctions. Values, however, appear to have declined according to cabled reports of the auctions held on November 30, December 7 and 15, when the average price for First latex crêpe was 43.2 cents and Smoked sheet ribbed was 42.5 cents.

### NEW YORK SPOT QUOTATIONS.

| | Jan. 1, 1917. | Dec. 1, 1917. | Dec. 27, 1917. |
|---|---|---|---|
| PLANTATION PARAS— | | | |
| First latex crêpe / *Hevea first crêpe | 80 @ | 56 @ | 55 @55¼ |
| Amber crêpe No. 1, gristly blanket | 76 @ | 49 @ | 47 @ |
| Amber crêpe No. 2 | 75 @ | 48 @ | 46 @ |
| Amber crêpe No. 3 | 74 @ | 47 @ | 45 @ |
| Amber crêpe No. 4 | 73 @ | 46 @ | 44 @ |
| Brown crêpe, thick clean | 75 @ | 47½@ | 45 @ |
| Brown crêpe, thin clean | 75 @ | 48 @ | 45 @ |
| Brown crêpe, thin specky | 72 @ | 45 @ | 42 @43 |
| Brown crêpe, rolled | 60 @ | 35 @ | 33 @ |
| Smoked sheet, ribbed standard quality / *Hevea ribbed smoked sheets. | 80 @ | 55 @ | 54 @54½ |
| Smoked sheet, plain standard quality / *Hevea plain or smooth smoked sheets | @ | 52 @ | 51 @ |
| Unsmoked sheet, standard quality / *Hevea unsmoked sheets | @ | 49 @ | 49 @50 |
| Colombo scrap, No. 1 | @ | 41 @ | **41 @ |
| Colombo scrap, No. 2 | @ | 39 @ | **39 @ |
| BRAZILIAN PARAS— | | | |
| Upriver fine | 79 @ | 55 @ | 61½@62 |
| Upriver medium | @ | 50 @ | 56 @57 |
| Upriver coarse | 54 @ | 37 @ | 41½@ |
| Upriver weak fine | @ | 47 @ | 50 @51 |
| Upriver caucho ball | @ | 36 @ | 40½@41 |
| Islands fine | 69 @ | 45 @ | 52 @ |
| Islands medium | @ | 40 @ | 45 @46 |
| Islands coarse | 35 @ | 25 @ | 27 @ |
| Cametá | 34 @ | 25½@ | 27 @ |
| Lower caucho ball | 51 @ | 34 @ | 39 @ |
| Peruvian fine | @ | @ | 58 @ |
| Tapajos fine | @ | 51 @ | 57 @58 |
| Tapajos caucho ball | @ | 34 @ | 39 @ |
| AFRICANS— | | | |
| Accra flake, prime | 31 @ | @ | 48 @ |
| Niger flake, prime | 31 @ | @ | 48 @ |
| Benguela, extra seconds, 28% | 40 @ | 33 @ | **52 @53 |
| Benguela, No. 2, 32½% | 35 @ | 30 @ | **50 @51 |
| Congo prime, black upper | @ | 54 @ | 50 @ |

| | Jan. 1, 1917. | Dec. 1, 1917. | Dec. 27, 1917. |
|---|---|---|---|
| Congo prime, red upper | @ | 52 @ | 48 @ |
| Rio Nunez ball | @ | 60 @ | **66 @ |
| Rio Nunez sheets and strings | @ | 60 @ | **66 @ |
| Conakry niggers | 61 @ | 60 @ | **65 @66 |
| Massai sheets and strings | 61 @ | 60 @ | **65 @66 |
| CENTRALS— | | | |
| Corinto | 52 @ | 35 @ | 40 @ |
| Esmeralda sausage | 51 @ | 35 @ | 39 @40 |
| Central scrap | 49 @ | 34 @ | 37 @ |
| Central scrap and strip | 47 @ | 32 @ | 35 @ |
| Central wet sheet | 38 @ | 25 @ | 26 @ |
| Guayule | 42 @ | 27 @ | 27½@28½ |
| MANICOBAS— | | | |
| Ceara negro heads | @ | 35 @ | 35 @36 |
| Ceara scrap | @ | 25 @ | 25 @26 |
| Manicoba special | @ | @ | 33 @ |
| Manicoba extra | 36 @37 | @ | 30 @ |
| Manicoba regular | @ | @ | 27 @ |
| Mangabeira thin sheet | 37 @ | @ | 31 @ |
| Mangabeira thick sheet | @ | @ | 26 @ |
| BALATA— | | | |
| Block, Ciudad Bolivar | 64 @ | @ | 72 @ |
| Colombian | @ | @ | 53 @ |
| Panama | @ | @ | 50½@51½ |
| Surinam sheet | 76 @ | @ | 83½@ |
| EAST INDIAN— | | | |
| Assam crêpe | @ | @ | 46 @ |
| Assam onions | @ | @ | 45 @ |
| Penang block scrap | @ | @ | 38 @ |
| Pontianak pressed | 9 @ | 19½@ | 20½@21 |
| Bandjermassin | @ | 12 @ | 13½@14 |
| Gutto siak | 15 @ | 19 @ | 21 @ |
| Gutta percha, red Macassar | 1.90@ | 2.00@ | 2.50@3.00 |

*Rubber Association of America nomenclature.
**Nominal.

## THE MARKET FOR COMMERCIAL PAPER.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York), advises as follows:

"But little change has occurred in the market for paper during December, from the conditions prevailing for the past three months, New York City banks buying little, but from out-of-town banks there has been a fair demand, the best rubber names ruling at 6 per cent, and those not so well known 6½ per cent and above."

## COMPARATIVE HIGH AND LOW RUBBER PRICES.

| | December. 1917.* | 1916. | 1915. |
|---|---|---|---|
| Plantation: | | | |
| First latex crêpe | $0.53 @0.56 | $0.72½@0.84 | $0.75@1.02 |
| Smoked sheet ribbed | .51 @ .55 | .72½@ .84 | .75@1.01 |
| Paras: | | | |
| Upriver, fine | .53½@ .61 | .78 @ .80 | .65@ .91 |
| Upriver, coarse | .36 @ .41 | .51 @ .58 | .57@ .74 |
| Islands, fine | .45 @ .50 | .71 @ .73 | .64@ .65 |
| Islands, coarse | .25 @ .27½ | .32 @ .35 | ...@ ... |
| Cameta | .25 @ .26½ | .33 @ .36 | .34@ .46 |

*Figured only to December 24.

## MARKET CABLE SERVICE FROM LONDON.

The following market report has been cabled by Aldens' Successors, Limited, London:

| | Standard Crêpe. | Ribbed Smoked Sheets. | Market. |
|---|---|---|---|
| November 26 | 30 d. | 29¾d. | Firmer |
| December 3 | 29¾d. | 29 d. | Firmer |
| December 10 | 28 d. | 27¾d. | Firmer |
| December 17 | 28¼d. | 28¼d. | Firmer |
| December 27 | 29½d. | 28½d. | Quiet |

## MARKET CABLE SERVICE FROM SINGAPORE.

The following reports of the weekly auctions held at Singapore have been cabled by The Waterhouse Co., Limited:

| Date. | Crêpe. Price per lb. | Smoked Sheet. Price per lb. | Tons Sold. | Market. |
|---|---|---|---|---|
| November 30...cents | 44.20 | 44.20 | 324 | Rather more active. |
| December 7 | 43.35 | 43.35 | 485 | Active with a good demand. |
| December 15 | 42.06 | 39.95 | 242 | Steady, with moderate demand. |
| December 27 | 42.08 | 42.50 | 357 | Opened strong, but closed weak. |

## WEEKLY RUBBER REPORT.

GUTHRIE & CO., LIMITED, Singapore, report [November 16, 1917]: At the weekly rubber auction held yesterday and today there were very few buyers in the market, and only a small proportion of the rubber on offer was disposed of, the quantity sold being 207 tons out of 1,356 tons catalogued. Prices suffered a somewhat sharp drop, the highest paid for fine pale crêpe being $7 down at $112, and that for ribbed smoked sheet $8 down at $111 per picul. For lower grades there was no demand except at bargain prices, and very little was sold.

The following was the course of values:

| | In Singapore per Picul.* | Sterling Equivalent per Pound in London. | Equivalent per Pound in Cents. |
|---|---|---|---|
| Sheet, fine ribbed smoked | $108@111 | 2/ 3⅛@2/ 3¼ | 45.90@47.18 |
| Sheet, good ribbed smoked | 94@104 | 2/ 0¼@2/ 2⅛ | 39.95@44.20 |
| Crêpe, fine pale | 109@112 | 2/ 3⅛@2/ 4 | 46.33@47.60 |
| Crêpe, good pale | 100@108 | 2/ 1⅝@2/ 3⅛ | 42.50@45.90 |
| Crêpe, fine brown | 70@ 76 | 1/ 7¼@1/ 8½ | 29.75@32.30 |
| Crêpe, good brown | 50@ 70 | 1/ 3 @1/ 7½ | 21.25@29.75 |
| Crêpe, dark brown | 40@ 60 | 1/ 0⅞@1/ 5⅛ | 17.00@25.50 |
| Crêpe, bark | 25@ 43 | —/ 9¾@1/ 3⅛ | 10.63@18.28 |
| Scrap, virgin and pressed | 26@ .. | —/10 @.... | 11.05@..... |

Picul = 133⅓ pounds.
Quoted in S. S. dollars = 2/4 [56.7 cents.]

## EXPORTS OF RUBBER FROM PENANG.

AUGUST 2-16, 1917.

| To— UNITED STATES: | POUNDS. | To— EUROPE: | POUNDS. |
|---|---|---|---|
| Seattle | 963,200 | England— | |
| San Francisco | 586,880 | Liverpool | 105,280 |
| New York | 582,400 | | |
| Akron | 257,600 | | |
| Total | 2,390,080 | | |

## PLANTATION RUBBER EXPORTS FROM JAVA.

| | August | | Eight Months Ending August | |
|---|---|---|---|---|
| To— | 1916. | 1917. | 1916. | 1917. |
| HOLLAND: | | | | |
| Hevea ...pounds | 4,480 | ..... | 228,480 | ..... |
| GREAT BRITAIN: | | | | |
| Ficus | 4,259 | ..... | 28,004 | 8,521 |
| Hevea | 1,153,600 | 94,080 | 4,751,040 | 3,660,160 |
| Ceara | 1,320 | ..... | 54,703 | 20,684 |
| Castilloa | 14,403 | ..... | 43,010 | 24,097 |
| Totals | 1,173,582 | 94,080 | 4,876,757 | 3,713,462 |
| UNITED STATES: | | | | |
| Ficus | ..... | 601 | 33,031 | 12,085 |
| Hevea | 1,749,440 | 2,063,040 | 11,079,040 | 23,222,080 |
| Ceara | ..... | ..... | 11,114 | 185 |
| Castilloa | 17,536 | 418 | 17,536 | 11,561 |
| Totals | 1,766,976 | 2,064,059 | 11,140,721 | 23,245,911 |
| SINGAPORE: | | | | |
| Ficus | ..... | 4,950 | 26,169 | 18,669 |
| Hevea | 217,280 | 340,480 | 2,719,360 | 2,210,880 |
| Ceara | ..... | 2,097 | 21,712 | 30,745 |
| Castilloa | ..... | ..... | 3,465 | 3,405 |
| Totals | 217,280 | 347,527 | 2,770,706 | 2,263,699 |
| JAPAN: | | | | |
| Hevea | ..... | 2,240 | ..... | 8,960 |
| OTHER COUNTRIES: | | | | |
| Ficus | ..... | ..... | 3,791 | ..... |
| Hevea | 230,720 | 8,960 | 575,680 | 29,120 |
| Totals | 230,720 | 8,960 | 579,471 | 29,120 |

## STRAITS SETTLEMENTS RUBBER EXPORTS.

An official cablegram from Singapore gives the export of cultivated rubber from Straits Settlements ports in the month of October as 4,702 tons (of which 329 tons were transshipments) as against 5,679 tons in September and 5,233 tons in the corresponding month last year. The total export for the present year amounts to 61,034 tons, compared with 40,184 tons last year and 27,594 tons in 1915.

Appended are the comparative statistics:

| | 1915. | 1916. | 1917. |
|---|---|---|---|
| January ...tons | 2,576 | 4,443 | 3,562 |
| February | 2,741 | 3,359 | 6,495 |
| March | 2,477 | 4,481 | 8,299 |
| April | 1,978 | 4,219 | 6,103 |
| May | 3,588 | 3,274 | 6,282 |
| June | 2,249 | 3,836 | 8,775 |
| July | 2,324 | 5,106 | 7,351 |
| August | 2,295 | 3,246 | 3,786 |
| September | 4,725 | 2,987 | 5,679 |
| October | 2,641 | 5,233 | 4,702 |
| Totals | 27,594 | 40,184 | 61,034 |

## IMPORTS OF RUBBER AND GUTTA AT SINGAPORE.

October 1-25, 1917.

| From— | Para Rubber. | Para Rubber for Treatment. | Borneo Rubber. | Gutta Percha. | Gutta Jelutong. |
|---|---|---|---|---|---|
| **Malay Peninsula—** | | | | | |
| Port Swettenham....*lbs.* | 3,017,467 | ..... | ..... | ..... | ..... |
| Teluk Anson ..... | 1,641,067 | ..... | ..... | ..... | ..... |
| Malacca ..... | 1,389,600 | 699,067 | ..... | ..... | ..... |
| Penang ..... | 1,010,400 | 6,667 | ..... | ..... | ..... |
| Muar ..... | 793,467 | 8,933 | ..... | ..... | ..... |
| Kelantan ..... | 256,933 | 7,467 | ..... | ..... | ..... |
| Port Dickson ..... | 280,933 | ..... | ..... | ..... | ..... |
| Kuantan ..... | 80,933 | ..... | ..... | ..... | ..... |
| Kota Baroe ..... | 13,067 | ..... | ..... | ..... | ..... |
| Rengat ..... | 21,333 | 37,067 | ..... | ..... | ..... |
| Pekan ..... | 1,867 | ..... | ..... | ..... | ..... |
| Tringganu ..... | 1,600 | ..... | ..... | ..... | ..... |
| Pahang ..... | 2,667 | ..... | ..... | ..... | ..... |
| S. Pandjang ..... | 133 | ..... | ..... | ..... | ..... |
| Totals ..... | 8,511,867 | 759,201 | ..... | ..... | ..... |
| **Borneo—** | | | | | |
| Sarawak ..... | 258,267 | ..... | ..... | 14,800 | 261,733 |
| Jesselton ..... | 143,733 | 179,200 | ..... | 133 | ..... |
| Bandjermassin ..... | 145,867 | 52,533 | 9,333 | 100,667 | 39,200 |
| Pontianak ..... | 128,533 | ..... | 3,333 | 14,667 | 71,867 |
| Sambas ..... | 70,667 | ..... | ..... | ..... | 4,667 |
| Sibu ..... | 62,533 | ..... | 267 | 13,733 | 132,267 |
| Sandakan ..... | 56,667 | 16,800 | 400 | ..... | ..... |
| Labuan ..... | 46,133 | 20,400 | ..... | 1,867 | 138,933 |
| Kudat ..... | 11,867 | 18,000 | ..... | ..... | ..... |
| Singkawang ..... | 11,600 | ..... | ..... | ..... | ..... |
| Samarinda ..... | 2,267 | ..... | 3,333 | 20,800 | ..... |
| Sampit ..... | 133 | ..... | 1,067 | ..... | 26,667 |
| Totals ..... | 938,267 | 286,933 | 17,733 | 214,934 | 655,334 |
| **Sumatra—** | | | | | |
| Deli ..... | 485,067 | 60,667 | ..... | ..... | ..... |
| Djambi ..... | 410,933 | ..... | ..... | ..... | ..... |
| Belawan ..... | 41,867 | ..... | ..... | ..... | ..... |
| Palembang ..... | 42,400 | ..... | ..... | 51,333 | ..... |
| Indragiri ..... | 27,067 | 22,667 | ..... | ..... | 4,000 |
| Passir ..... | 14,800 | ..... | ..... | 400 | ..... |
| Siak ..... | 6,267 | 17,867 | ..... | ..... | ..... |
| Muntok ..... | 2,667 | ..... | ..... | ..... | ..... |
| Bengkalis ..... | 1,467 | ..... | ..... | ..... | ..... |
| Siboga ..... | 3,200 | ..... | 1,333 | ..... | ..... |
| Totals ..... | 1,035,735 | 101,201 | 1,333 | 51,733 | 4,000 |
| **Java—** | | | | | |
| Batavia ..... | 155,200 | ..... | ..... | ..... | ..... |
| Tandjong Priok ..... | 87,067 | ..... | ..... | ..... | ..... |
| Soerabaia ..... | 8,800 | ..... | ..... | ..... | ..... |
| Samarang ..... | 10,000 | ..... | ..... | ..... | ..... |
| Total ..... | 261,067 | ..... | ..... | ..... | ..... |
| **Burma—** | | | | | |
| Rangoon ..... | 7,733 | ..... | ..... | 27,467 | ..... |
| **Siam—** | | | | | |
| Bangkok ..... | 1,067 | ..... | ..... | 27,467 | ..... |
| Patani ..... | 533 | ..... | ..... | ..... | ..... |
| Totals ..... | 1,600 | ..... | ..... | 27,467 | ..... |
| Other ports ..... | 204,400 | ..... | 7,200 | 2,667 | 340,800 |
| Grand Total .....10,960,669 | | 1,147,335 | 26,266 | 324,268 | 1,000,134 |

### IMPORTS OF CRUDE RUBBER AT CEYLON.

OCTOBER 15-22, 1917.

| From— | Pounds. |
|---|---|
| MALAY PENINSULA: | |
| Penang ..... | 20,092 |
| INDIA: | |
| Tuticorin ..... | 84,946 |
| Total ..... | 105,038 |

Total Imports from January 1 to October 22, 1917:

| From— | |
|---|---|
| Malay Peninsula .....1,874,629 | |
| India ..... 856,253 | |
| Burma and other countries 21,217 | |
| Total .....2,752,099 | |

## CRUDE RUBBER ARRIVALS AT THE PORT OF NEW YORK.

The following statistics are not complete, due to Government orders prohibiting access to the record.

*[The Figures Indicate Weight in Pounds.]*

**PARAS.**

| | Fine. | Medium. | Coarse. | Caucho. | Cameta. | Totals. |
|---|---|---|---|---|---|---|
| OCTOBER 20.—By the *Curvello*=Manaos: | | | | | | |
| Hagemeyer & Brunn.... | 28,400 | ..... | ..... | 44,800 | .....= | 73,200 |
| NOVEMBER 1.—By the *Tela*=Pará and Manaos: | | | | | | |
| Hagemeyer & Brunn.... | ..... | ..... | 33,600 | 56,000 | .....= | 89,600 |
| Pell & Dumont..... | 37,400 | 3,857 | 230 | 31,328 | .....= | 72,815 |
| NOVEMBER 9.—By the *G. W. Goethals*=Panama: | | | | | | |
| W. R. Grace & Co..... | 2,422 | ..... | ..... | 2,083 | .....= | 4,505 |
| NOVEMBER 26.—By the *Sergipe*=Pará and Manaos: | | | | | | |
| Aldens' Successors, Ltd. | ..... | ..... | 6,000 | ..... | .....= | 6,000 |
| W. R. Grace & Co..... | 56,000 | ..... | 5,555 | 4,400 | 22,400= | 88,355 |
| General Rubber Co.....123,200 | | 4,500 | 44,800 | 112,000 | .....= | 284,500 |
| Arnold & Zeiss.....156,957 | | 5,200 | 47,440 | 106,000 | 16,700= | 332,297 |
| Pell & Dumont..... | 11,200 | ..... | ..... | ..... | 22,300= | 33,500 |
| Hagemeyer & Brunn.... | 56,000 | ..... | ..... | ..... | 67,200= | 123,200 |
| H. A. Astlett & Co..... | 74,230 | 25,540 | 103,300 | 11,700 | 27,470= | 152,240 |
| DECEMBER 6.—by the *Avaré*=Pará and Manaos: | | | | | | |
| Hagemeyer & Brunn.... | 67,200 | ..... | 22,400 | 22,400 | .....= | 112,000 |
| Arnold & Zeiss..... | 64,800 | 1,300 | 6,000 | 5,000 | .....= | 77,100 |
| General Rubber Co..... | 34,800 | ..... | ..... | ..... | .....= | 34,800 |
| H. A. Astlett & Co..... | 21,690 | 750 | ..... | ..... | .....= | 22,440 |
| W. R. Grace & Co..... | 2,970 | ..... | 348 | 23,034 | .....= | 26,352 |
| Meyer & Brown..... | 15,700 | ..... | 5,500 | 17,700 | .....= | 38,900 |
| DECEMBER 10.—By the *Charkow*=Pará: | | | | | | |
| Hagemeyer & Brunn.... | ..... | ..... | 11,200 | ..... | 33,000= | 44,200 |
| H. A. Astlett & Co..... | 19,820 | 5,600 | 13,640 | 16,500 | .....= | 55,560 |
| DECEMBER 12.—By the *Vindeggen*=Pará and Manaos: | | | | | | |
| General Rubber Co.....201,600 | | ..... | 26,880 | 136,900 | .....= | 365,380 |
| Hagemeyer & Brunn.... | ..... | ..... | 11,200 | 22,400 | .....= | 33,600 |
| Arnold & Zeiss..... | 20,000 | 2,700 | 47,900 | 41,500 | 12,000= | 124,100 |
| Pell & Dumont..... | 11,200 | ..... | 11,300 | 130,500 | .....= | 153,000 |
| W. R. Grace & Co..... | ..... | ..... | 4,480 | 12,850 | .....= | 17,330 |
| H. A. Astlett & Co.....168,116 | | 36,300 | 116,370 | 52,530 | 10,164= | 383,480 |
| Meyer & Brown.....175,600 | | 6,700 | 25,500 | 76,200 | .....= | 284,000 |
| DECEMBER 14.—By the *Ancon* Mollendo: | | | | | | |
| W. R. Grace & Co..... | ..... | ..... | ..... | 3,498 | .....= | 3,498 |

**PLANTATIONS.**

TO NEW YORK.

NOVEMBER 7.—By the *Hanna Neilson*=Singapore:

| | Pounds. |
|---|---|
| J. T. Johnstone & Co..... | 367,350 |
| Fred Stern & Co..... | 421,120 |

NOVEMBER 13.—By the *City of Edinburgh*=Colombo:

| | |
|---|---|
| J. T. Johnstone & Co..... | 49,653 |

NOVEMBER 26.—By the *Flaminian*=Colombo:

| | |
|---|---|
| J. T. Johnstone & Co..... | 32,000 |
| Rubber Trading Co..... | 33,600 |
| W. R. Grace & Co..... | 22,400 |
| Arnold & Zeiss..... | 89,600 |
| Fred Stern & Co..... | 26,880 |

NOVEMBER 28.—By the *City of Vienna*=Colombo:

| | |
|---|---|
| J. T. Johnstone & Co..... | 4,480 |
| Fred Stern & Co..... | 87,560 |

DECEMBER 4.—By the *Niagara*=Far East:

| | |
|---|---|
| W. R. Grace & Co..... | 6,720 |

DECEMBER 8.—By the *City of Cairo*=Far East:

| | |
|---|---|
| W. R. Grace & Co..... | 23,220 |
| Arnold & Zeiss..... | 22,400 |
| Fred Stern & Co..... | 33,600 |

**CENTRALS.**

| | Pounds. |
|---|---|
| NOVEMBER 5.—By the *Sixaola*=Para: | |
| W. R. Grace & Co..... | 787 |
| DECEMBER 8.—By the *Panama*=Manta and Bahia de Caraquez: | |
| Commercial Bank of Spanish America, Limited ..... | 15,386 |
| DECEMBER 10.—By the *Gen. G. W. Goethals*=Manta: | |
| Commercial Bank of Spanish America, Limited ..... | 5,145 |
| DECEMBER 11.—By the *Ancon*=Bahia de Caraquez: | |
| Commercial Bank of Spanish America, Limited ..... | 14,000 |

**AFRICANS.**

| | |
|---|---|
| NOVEMBER 26.—By the *Pannonia*=Liverpool: | |
| Rubber Trading Co..... | 7,840 |
| NOVEMBER 29.—By the *Francisco*=Liverpool: | |
| Aldens' Successors, Limited..... | 11,400 |
| DECEMBER 16.—By the *Galileo*=Hull: | |
| W. R. Grace & Co..... | 5,500 |

## CRUDE RUBBER ARRIVALS AT PACIFIC COAST AS STATED BY SHIPS' MANIFESTS.*

### SEATTLE AND TACOMA.

**PLANTATIONS.**

*[Figured 135 pounds net to the case.]*

TO AKRON, OHIO.

| | Pounds. |
|---|---|
| NOVEMBER 26.—By the *Senator*=Hongkong: | |
| Goodyear Tire & Rubber Co..... | 21,870 |
| †NOVEMBER 30.—By the *Burma Maru*=Singapore: | |
| Goodyear Tire & Rubber Co....1,099,575 | |
| The B. F. Goodrich Co..... 957,015 | 2,056,590 |
| DECEMBER 14.—By the *Tyndareus*=Hongkong: | |
| Goodyear Tire & Rubber Co..... | 153,495 |

### TO NEW YORK.

| | Pounds. | |
|---|---|---|
| NOVEMBER 26.—By the *Senator*=Hongkong. | | |
| Edward Maurer & Co | 41,850 | |
| Charles T. Wilson Co., Inc | 27,540 | |
| L. Littlejohn & Co | 112,995 | |
| Eugen Boissevain & Co., Inc | 18,765 | |
| Winter Sons & Co | 22,545 | |
| Fred Stern & Co | 3,780 | |
| Goodyear Tire & Rubber Co | 16,875 | |
| Arthur Meyer & Co | 4,725 | 249,075 |
| †NOVEMBER 30.—By the *Burma Maru*=Singapore: | | |
| Rubber Trading Co | 14,175 | |
| Robinson & Co | 48,060 | |
| W. R. Grace & Co | 3,375 | |
| Arthur Meyer & Co | 14,580 | |
| L. Littlejohn & Co | 132,030 | |
| Henderson & Korn | 527,850 | |
| Robert Badenhop Co | 72,765 | |
| Charles T. Wilson Co., Inc | 35,755 | |
| J. T. Johnstone & Co | 50,625 | |
| Fred Stern & Co | 20,250 | |
| Aldens' Successors, Limited | 24,300 | |
| Arnold & Zeiss | 5,265 | 969,030 |
| DECEMBER 14.—By the *Tyndareus*=Hongkong: | | |
| Aldens' Successors, Limited | 20,925 | |
| Arnold & Zeiss | 4,050 | |
| Henderson & Korn | 161,865 | |
| J. T. Johnstone & Co | 35,775 | |
| L. Littlejohn & Co | 30,780 | |
| Meyer & Brown | 75,735 | |
| United States Rubber Co | 32,265 | 361,395 |

### TO SEATTLE, WASH.

| | | |
|---|---|---|
| NOVEMBER 24.—By the *Niagara*=Vancouver: | | |
| Goodyear Tire & Rubber Co | | 41,445 |
| NOVEMBER 26.—By the *Senator*=Hongkong: | | |
| J. T. Johnstone & Co | 7,560 | |
| Arthur Meyer & Co | 3,510 | |
| Obalski Sweeney, Inc | 24,300 | |
| Goodyear Tire & Rubber Co | 16,875 | |
| W. R. Grace & Co | 167,940 | |
| Meyer & Brown | 3,105 | 223,290 |
| †NOVEMBER 30.—By the *Burma Maru*=Singapore: | | |
| Charles T. Wilson Co., Inc | 52,515 | |
| W. R. Grace & Co | 142,020 | |
| Firestone Tire & Rubber Co | 186,840 | |
| Goodyear Tire & Rubber Co | 69,660 | |
| L. Littlejohn & Co | 67,770 | |
| J. T. Johnstone & Co | 135,945 | |
| Meyer & Brown | 66,420 | |
| Robinson & Co | 5,535 | |
| Winter Sons & Co | 135,000 | |
| Arthur Meyer & Co | 16,335 | |
| Balfour, Guthrie & Co | 24,975 | |
| Arnold & Zeiss | 6,075 | |
| Rubber Trading Co | 4,590 | 913,680 |
| DECEMBER 14.—By the *Tyndareus*=Hongkong: | | |
| Henderson & Korn | 28,080 | |
| J. T. Johnstone & Co | 125,145 | |
| Arnold & Zeiss | 20,655 | |
| East Asiatic Co | 59,805 | |
| The B. F. Goodrich Co | 622,485 | |
| W. R. Grace & Co | 1,755 | |
| L. Littlejohn & Co | 137,565 | |
| Fred Stern & Co | 59,265 | |
| Charles T. Wilson Co., Inc | 31,455 | 1,086,210 |

### TO TORONTO, CAN.

| | | |
|---|---|---|
| DECEMBER 14.—By the *Tyndareus*=Hongkong: | | |
| J. T. Johnstone & Co | | 23,895 |

### TO WATERTOWN, MASS.

| | | |
|---|---|---|
| †NOVEMBER 30.—By the *Burma Maru*=Singapore: | | |
| Hood Rubber Co | | 141,885 |

### TO GRANBY, CANADA.

| | | |
|---|---|---|
| †NOVEMBER 30.—By the *Burma Maru*=Singapore: | | |
| Miner Rubber Co., Limited | | 29,565 |

**PONTIANAK.**

### TO SEATTLE, WASH.

| | | |
|---|---|---|
| NOVEMBER 26.—By the *Senator*=Hongkong: | | |
| L. Littlejohn & Co.: | | |
| Gutta siak | 29,700 | |
| Gutta jelutong | 26,460 | 56,160 |
| †NOVEMBER 30.—By the *Burma Maru*=Singapore: | | |
| Equitable Trust Co.: | | |
| Gutta siak | 117,180 | |
| United Malaysian Rubber Co.: | | |
| Gutta siak | 33,750 | |
| Gutta untreated | 138,240 | 289,170 |

*Footnote.—The figures under this head and under Crude Rubber Arrivals at Pacific Coast as Reported, have been obtained from different sources; repetitions may, therefore, occur.

†Arrived at Tacoma.

## SAN FRANCISCO*

**PLANTATIONS.**

[*Figured 135 pounds net to the case.*]

| | Pounds. | |
|---|---|---|
| NOVEMBER 21.—By the *Tjisondari*=Soerabaia: | | |
| H. B. M. Consul General | 315,765 | |
| Firestone Tire & Rubber Co | 193,320 | |
| Meyer & Brown | 38,610 | |
| Arnold & Zeiss | 267,975 | |
| Goodyear Tire & Rubber Co | 127,440 | |
| The B. F. Goodrich Co | 154,845 | |
| L. Littlejohn & Co | 405 | |
| Eugen Boissevain & Co., Inc | 7,290 | |
| Rubber Trading Co | 10,125 | |
| Robinson & Co | 3,915 | |
| General Rubber Co | 85,050 | |
| Edward Maurer & Co | 29,160 | |
| G. Amsinck & Co | 41,985 | |
| Joosten & Janssen | 7,020 | |
| Henderson & Korn | 165,645 | 1,448,550 |
| NOVEMBER 23.—By the *Nichiyo Maru*=Yokohama: | | |
| Robinson & Co | 17,280 | |
| Charles T. Wilson Co., Inc | 78,435 | |
| Firestone Tire & Rubber Co | 170,370 | |
| Meyer & Brown | 73,980 | |
| Goodyear Tire & Rubber Co | 2,835 | |
| L. Littlejohn & Co | 67,230 | 410,130 |
| NOVEMBER 23.—By the *Princes Juliana*=Batavia: | | |
| Firestone Tire & Rubber Co | 132,300 | |
| Bowers Rubber Co | 1,620 | |
| Harrison & Crosfield | 12,555 | |
| Savage Tire Co | 6,750 | |
| Arnold & Zeiss | 9,180 | |
| H. B. M. Consul General | 34,020 | |
| G. Amsinck & Co | 143,505 | |
| Hagemeyer Trading Co | 31,455 | |
| Balfour, Williamson & Co | 21,870 | |
| Edward Maurer & Co | 4,860 | |
| Meyer & Brown | 89,775 | |
| Frame Layercraft Co | 10,530 | |
| Southern Pacific Railroad Co | 361,665 | |
| Goodyear Tire & Rubber Co | 139,185 | 999,270 |
| NOVEMBER 23.—By the *City of Para*=Balboa: | | |
| Bowers Rubber Works | 945 | |
| J. B. Havre | 945 | |
| W. Loaiza & Co | 945 | 2,835 |
| NOVEMBER 27.—By the *Santa Cruz*=Singapore: | | |
| Henderson & Korn | 117,855 | |
| Meyer & Brown | 202,635 | |
| Harrison & Crosfield | 2,160 | |
| Arnold & Zeiss | 69,120 | |
| Robinson & Co | 16,875 | |
| Goodyear Tire & Rubber Co | 3,375 | |
| W. R. Grace & Co | 95,715 | |
| L. Littlejohn & Co | 191,160 | |
| Fred Stern & Co | 42,390 | |
| Wells Fargo & Co | 3,510 | |
| Charles T. Wilson Co., Inc | 8,100 | |
| Arthur Meyer & Co | 4,320 | |
| Balfour, Williamson & Co | 29,430 | |
| The B. F. Goodrich Co | 444,960 | 1,231,605 |
| NOVEMBER 27.—By the *Transvaal*=Singapore: | | |
| J. T. Johnstone & Co | 105,435 | |
| Arnold & Zeiss | 114,345 | |
| L. Littlejohn & Co | 71,955 | |
| Fred Stern & Co | 453,870 | |
| Edward Maurer & Co | 160,110 | |
| Goodyear Tire & Rubber Co | 34,155 | |
| Arthur Meyer & Co | 9,585 | |
| Hagemeyer Trading Co | 11,475 | |
| Rubber Trading Co | 18,630 | |
| East Asiatic Co | 31,995 | |
| Robinson & Co | 6,075 | |
| Meyer & Brown | 25,920 | |
| United States Rubber Co | 324,000 | |
| Charles T. Wilson Co., Inc | 50,220 | 1,417,770 |
| DECEMBER 1.—By the *Tenyo Maru*=Hongkong: | | |
| The B. F. Goodrich Co | 190,080 | |
| Arthur Meyer & Co | 8,370 | |
| Stein & Co | 30,105 | |
| Goodyear Tire & Rubber Co | 62,100 | |
| J. T. Johnstone & Co | 30,240 | |
| Charles T. Wilson Co., Inc | 2,970 | |
| Robinson & Co | 4,050 | |
| W. R. Grace & Co | 6,480 | |
| Rubber Trading Co | 11,880 | 346,275 |
| DECEMBER 5.—By the *Willis*=Batavia: | | |
| Rubber Trading Co | 103,950 | |
| H. B. M. Consul General | 127,440 | |
| Irving National Bank | 14,175 | |
| Eugen Boissevain & Co., Inc | 2,160 | |
| W. R. Grace & Co | 60,615 | |
| General Rubber Co | 197,505 | |
| G. Amsinck & Co | 28,080 | |
| Henderson & Korn | 405 | |
| Arnold & Zeiss | 64,395 | |
| Charles T. Wilson Co., Inc | 38,205 | |
| Goodyear Tire & Rubber Co | 79,245 | 716,175 |
| DECEMBER 8.—By the *Nippon Maru*=Hongkong: | | |
| J. T. Johnstone & Co | 105,840 | |
| Goodyear Tire & Rubber Co | 27,000 | |
| Henderson & Korn | 101,250 | 234,090 |
| DECEMBER 10.—By the *Bintang*=Hongkong: | | |
| J. T. Johnstone & Co | 11,880 | |
| Arnold & Zeiss | 102,870 | |
| H. B. M. Consul General | 179,145 | |
| Robinson & Co | 26,325 | |
| Firestone Tire & Rubber Co | 40,770 | |
| Meyer & Brown | 179,280 | |
| Edward Maurer & Co | 127,440 | |
| Von Nordheim & Co | 81,000 | |
| G. Amsinck & Co | 28,485 | |
| Eugen Boissevain & Co., Inc | 5,130 | |
| Rubber Trading Co | 40,230 | |
| Mayflower Tea Co | 4,050 | |
| H. B. M. Consul, Akron | 137,565 | 964,170 |
| DECEMBER 12.—By the *China*=Hongkong: | | |
| Edward Maurer & Co | 36,720 | |
| Arnold & Zeiss | 79,650 | |
| Winters Son & Co | 36,990 | 153,360 |
| DECEMBER 12.—By the *Shinyo Maru No. 2*=Hongkong: | | |
| Henderson & Korn | 197,775 | |
| Winters Son & Co | 66,825 | |
| Toyo Kisen Kaisha | 405 | 265,005 |
| DECEMBER 19.—By the *Shinyo Maru*=Hongkong: | | |
| The B. F. Goodrich Co | 79,515 | |
| Goodyear Tire & Rubber Co | 945 | 80,460 |
| Shortshipped *Tenyo Maru:* | | |
| The B. F. Goodrich Co | | 405 |
| DECEMBER 20.—By the *Rembrandt*=Soerabaia: | | |
| Firestone Tire & Rubber Co | 405 | |
| L. Littlejohn & Co | 44,955 | |
| H. B. M. Consul General | 267,300 | |
| Arnold & Zeiss | 113,805 | |
| Meyer & Brown | 80,730 | |
| Raw Products Co | 45,225 | |
| General Rubber Co | 341,280 | |
| G. Amsinck & Co | 132,975 | |
| Rutger Bleeker & Co | 1,350 | |
| Balfour Williamson & Co | 14,580 | |
| Manhattan Rubber Co | 32,535 | 1,075,140 |

**PONTIANAK.**

| | | |
|---|---|---|
| NOVEMBER 23.—By the *Princes Juliana*=Batavia: | | |
| L. Littlejohn & Co.: | | |
| Gutta percha | 16,200 | |
| British Bank of South America: | | |
| Gutta percha | 36,585 | 52,785 |
| DECEMBER 5.—By the *Willis*=Batavia: | | |
| British Bank of South America. | | |
| Gutta percha | | 37,800 |

*Footnote.—The figures under this head and under Crude Rubber Arrivals at Pacific Coast as Reported, have been obtained from different sources; repetitions may, therefore, occur.

## CRUDE RUBBER ARRIVALS AT PACIFIC COAST AS REPORTED.

**PLANTATIONS.**

| | Pounds. |
|---|---|
| NOVEMBER 12.—By the *Sachsen*=Singapore: | |
| Fred Stern & Co | 250,880 |
| W. R. Grace & Co | 147,593 |
| NOVEMBER 12.—By the *Siberia Maru*=Singapore: | |
| J. T. Johnstone & Co | 52,048 |
| NOVEMBER 21.—By the *Tjisondari*=Batavia: | |
| General Rubber Co | 136,300 |
| Arnold & Zeiss | 314,000 |
| NOVEMBER 23.—By the *Princes Juliana*=Batavia: | |
| General Rubber Co | 482,100 |
| Arnold & Zeiss | 11,200 |
| NOVEMBER 23.—By the *Nichiyo Maru:* | |
| Fred Stern & Co | 26,880 |
| NOVEMBER 26.—By the *Senator*=Honkong: | |
| W. R. Grace & Co | 224,000 |
| NOVEMBER 27.—By the *Transvaal*=Colombo: | |
| General Rubber Co | 358,000 |
| Arnold & Zeiss | 156,000 |
| Fred Stern & Co | 548,800 |
| General Rubber Co | 358,000 |
| Meyer & Brown | 26,900 |
| J. T. Johnstone & Co | 115,495 |
| NOVEMBER 27.—By the *Santa Cruz*=Colombo: | |
| Fred Stern & Co | 67,200 |
| Arnold & Zeiss | 68,000 |
| W. R. Grace & Co | 80,580 |
| Meyer & Brown | 228,500 |
| NOVEMBER 30.—By the *Burma Maru*=Singapore: | |
| W. R. Grace & Co | 164,805 |
| Meyer & Brown | 73,900 |

| | Pounds. |
|---|---|
| DECEMBER 1.—By the *Tenyo Maru*=Hongkong: | |
| Meyer & Brown | 9,000 |
| W. R. Grace & Co. | 8,900 |
| J. T. Johnstone & Co. | 6,720 |
| DECEMBER 5.—By the *Willis*=Batavia: | |
| General Rubber Co. | 263,300 |
| Arnold & Zeiss | 110,000 |
| W. R. Grace & Co. | 82,880 |
| Meyer & Brown | 56,000 |
| DECEMBER 8.—By the *Nippon Maru*=Far East: | |
| J. T. Johnstone & Co. | 35,880 |
| DECEMBER 10.—By the *Empress of Asia*=Colombo: | |
| General Rubber Co. | 29,000 |
| DECEMBER 10.—By the *Bintang*=Soerabaia: | |
| Meyer & Brown | 121,000 |
| Arnold & Zeiss | 146,000 |
| DECEMBER 12.—By the *China*=Singapore: | |
| Arnold & Zeiss | 94,000 |
| DECEMBER 14.—By the *Tyndareus*=Colombo: | |
| General Rubber Co. | 41,000 |
| Arnold & Zeiss | 56,000 |
| Meyer & Brown | 79,500 |
| J. T. Johnstone & Co. | 89,600 |
| DECEMBER 19.—By the *Shinyo Maru*=Singapore: | |
| Rubber Trading Co. | 56,000 |
| DECEMBER 20.—By the *Rembrandt*=Soerabaia: | |
| Arnold & Zeiss | 156,000 |
| Meyer & Brown | 123,200 |
| DECEMBER 21.—By the *Katsu Maru*=Singapore: | |
| Meyer & Brown | 224,200 |
| Arnold & Zeiss | 114,000 |
| DECEMBER 21.—By the *Unkai Maru*=Far East: | |
| Arnold & Zeiss | 112,000 |
| NO DATES GIVEN. | |
| By the *Chicago Maru*=Singapore: | |
| Fred Stern & Co. | 26,880 |
| J. T. Johnstone & Co. | 6,720 |
| By the *Colombia*=Singapore: | |
| Fred Stern & Co. | 31,360 |
| J. T. Johnstone & Co. | 44,800 |
| By the *Korea Maru*=Far East: | |
| Fred Stern & Co. | 22,400 |
| By the *Colusa*=Singapore: | |
| Rubber Trading Co. | 56,000 |
| J. T. Johnstone & Co. | 79,730 |
| By the *Louise Neilson*=Colombo: | |
| Rubber Trading Co. | 40,320 |
| J. T. Johnstone & Co. | 98,832 |
| Hagemeyer Trading Co. | 17,920 |
| By the *Bankoku Maru*=Far East: | |
| Rubber Trading Co. | 6,720 |

## STATISTICS OF CRUDE AND MANUFACTURED RUBBER AT THE PORT OF NEW YORK.

### IMPORTS.

October, 1917.

| UNMANUFACTURED—*free:* | Pounds. | Value. |
|---|---|---|
| Crude rubber: | | |
| From— | | |
| France | 49,860 | $30,013 |
| Portugal | 62,976 | 35,206 |
| England | 2,115,920 | 1,183,664 |
| Costa Rica | 6,423 | 3,092 |
| Guatemala | 2,587 | 517 |
| Honduras | 4,491 | 2,174 |
| Nicaragua | 5,307 | 2,188 |
| Panama | 24,354 | 11,380 |
| Salvador | 1,708 | 79 |
| Mexico | 15,790 | 5,619 |
| Brazil | 2,866,072 | 850,875 |
| Chile | 1,623 | 900 |
| Colombia | 22,309 | 7,543 |
| Ecuador | 34,896 | 14,021 |
| British Guiana | 11,104 | 8,241 |
| Peru | 697,958 | 278,134 |
| Uruguay | 21,127 | 13,049 |
| Venezuela | 2,050 | 678 |
| British India | 134,682 | 97,453 |
| Straits Settlements | 5,238,224 | 2,880,742 |
| British East Indies | 813,839 | $504,639 |
| Dutch East Indies | 2,674,058 | 1,382,514 |
| Japan | 33,579 | 20,231 |
| British South Africa | 4,614 | 2,721 |
| Totals | 14,845,551 | $7,336,363 |
| Gutta percha—*free:* | | |
| From— | | |
| Dutch East Indies | 35,192 | $16,311 |
| Gutta jelutong—*dutiable:* | | |
| From— | | |
| Straits Settlements | 509,823 | $25,035 |
| Dutch East Indies | 709,613 | 36,125 |
| Japan | 14,668 | 2,014 |
| Totals | 1,234,104 | $63,174 |
| Balata—*free:* | | |
| From— | | |
| Costa Rica | 397 | $251 |
| Panama | 118,847 | 42,102 |
| Brazil | 639 | 122 |
| Colombia | 68,114 | 28,402 |
| British Guiana | 43,171 | 31,814 |
| Dutch Guiana | 70,196 | 52,729 |
| Venezuela | 7,920 | 3,226 |
| Totals | 309,284 | $158,646 |
| Rubber scrap—*free:* | | |
| From— | | |
| France | 72,526 | $5,013 |
| Italy | 48,436 | 12,780 |
| England | 647,895 | 35,600 |
| Panama | 4,960 | 271 |
| Jamaica | 1,424 | 65 |
| Cuba | 44,621 | 3,107 |
| Brazil | 3,447 | 21 |
| Totals | 823,309 | $56,857 |
| Totals, unmanufactured | 17,247,440 | $7,631,351 |
| MANUFACTURED—*dutiable:* | | |
| India rubber: | | |
| From— | | |
| France | ..... | $183 |
| England | ..... | 10,983 |
| Scotland | ..... | 1,466 |
| Canada | ..... | 1,695 |
| Straits Settlements | ..... | 26,823 |
| Japan | ..... | 3,742 |
| Total | ..... | $44,892 |

### EXPORTS OF DOMESTIC MERCHANDISE.

October, 1917.

| MANUFACTURED— | Pounds. | Value. |
|---|---|---|
| Automobile tires: | | |
| To— | | |
| France | ..... | $4,832 |
| Russia in Europe | ..... | 70,494 |
| England | ..... | 242,045 |
| Mexico | ..... | 10,683 |
| Trinidad | ..... | 26,291 |
| Cuba | ..... | 80,200 |
| Argentina | ..... | 295,857 |
| Brazil | ..... | 9,702 |
| Chile | ..... | 54,216 |
| Peru | ..... | 14,485 |
| Uruguay | ..... | 18,296 |
| Australia | ..... | 9,983 |
| New Zealand | ..... | 20,716 |
| British South Africa | ..... | 26,637 |
| Other countries | ..... | 61,845 |
| Total | ..... | $946,282 |
| All other tires | ..... | $72,151 |
| Belting, hose and packing | ..... | 213,818 |
| Rubber boots.....*pairs* | 267,872 | 809,298 |
| Rubber shoes.....*pairs* | 24,486 | 20,751 |
| Druggists' sundries | ..... | 38,003 |
| Scrap rubber | 69,006 | 17,601 |
| Reclaimed rubber | 162,812 | 22,608 |
| Other rubber manufactures | ..... | 401,463 |
| Total | ..... | $2,541,975 |

### EXPORTS OF FOREIGN MERCHANDISE.

October, 1917.

| UNMANUFACTURED— | Pounds. | Value. |
|---|---|---|
| India rubber | 26,860 | $20,467 |
| Gutta percha | 1,105 | 2,800 |
| Totals | 27,965 | $23,267 |

## CUSTOM HOUSE STATISTICS.

PORT OF BOSTON, MASS.—NOVEMBER, 1917.

| IMPORTS: | Pounds. | Value. |
|---|---|---|
| India rubber | 361,873 | $166,591 |
| Rubber scrap | 7,000 | 210 |
| Manufactures of india rubber | ..... | 2,451 |
| Total | ..... | $169,252 |
| EXPORTS: | | |
| India rubber boots—*pairs:* | | |
| To— | | |
| England | 14,167 | $50,294 |
| Canada | 96 | 280 |
| Totals | 14,263 | $50,574 |
| India rubber shoes—*pairs:* | | |
| To— | | |
| England | 91,498 | $38,913 |
| Canada | 139 | 137 |
| Cuba | 72 | 59 |
| Totals | 91,709 | $39,109 |
| Belting, hose and packing: | | |
| To— | | |
| Canada | ..... | $906 |
| Newfoundland | ..... | 124 |
| Total | ..... | $1,030 |
| Druggists' sundries: | | |
| To— | | |
| Newfoundland | ..... | $21 |
| Cuba | ..... | 1,936 |
| Total | ..... | $1,957 |
| Other manufactures of india rubber: | | |
| To— | | |
| Italy | ..... | $749 |
| England | ..... | 318 |
| Canada | ..... | 92 |
| Newfoundland | ..... | 64 |
| Cuba | ..... | 2,881 |
| Total | ..... | $4,104 |

PORT OF CHICAGO, ILLINOIS—NOVEMBER, 1917.

| IMPORTS: | Pounds. | Value. |
|---|---|---|
| Manufactures of india rubber | ..... | $600 |

PORT OF CLEVELAND, OHIO—NOVEMBER, 1917.

| IMPORTS: | Pounds. | Value. |
|---|---|---|
| India rubber | 945,255 | $495,305 |
| Rubber scrap | 82,009 | 13,355 |
| Totals | 1,027,264 | $508,660 |

PORT OF THE DISTRICT OF MICHIGAN, MICH.—OCTOBER, 1917.

| IMPORTS: | Pounds. | Value. |
|---|---|---|
| India rubber | 82,920 | $24,311 |
| Rubber scrap | 30,000 | 1,208 |
| Manufactures of india rubber | ..... | 20 |
| Total | ..... | $25,539 |
| EXPORTS: | | |
| Rubber scrap | 1,547 | $196 |
| Reclaimed rubber | 257 | 35 |
| India rubber boots.....*pairs* | 4,992 | 13,860 |
| Automobile tires | ..... | 23,011 |
| Other rubber tires | ..... | 29 |
| Belting, hose, etc. | ..... | 3,290 |
| All other manufactures of india rubber | ..... | 15,512 |
| Total | ..... | $55,933 |

PORT OF NEW YORK, NEW YORK—OCTOBER, 1917.

| IMPORTS: | Pounds. | Value. |
|---|---|---|
| India rubber | 14,845,551 | $7,336,363 |
| Balata | 309,284 | 158,646 |
| Gutta percha | 35,192 | 16,311 |
| Gutta jelutong (Pontianak) | 1,234,104 | 63,174 |
| Rubber scrap | 823,309 | 56,857 |
| Manufactures of india rubber | ..... | 44,892 |
| Total | ..... | $7,676,243 |
| EXPORTS: | | |
| India rubber | 26,860 | $20,467 |
| Gutta percha | 1,105 | 2,800 |
| Rubber scrap | 69,006 | 17,601 |
| Reclaimed rubber | 162,812 | 22,608 |
| India rubber boots.....*pairs* | 267,872 | 809,298 |
| India rubber shoes.....*pairs* | 24,486 | 20,751 |
| Automobile tires | ..... | 946,282 |
| Other rubber tires | ..... | 72,151 |
| Belting, hose, etc. | ..... | 213,818 |
| All other manufactures of india rubber | ..... | 439,466 |
| Total | ..... | $2,565,242 |

PORT OF PHILADELPHIA, PA.—NOVEMBER, 1917.

| EXPORTS: | Pounds. | Value. |
|---|---|---|
| Manufactures of india rubber | ..... | $3,289 |

PORT OF SAN FRANCISCO, CAL.—OCTOBER, 1917.

| IMPORTS: | Pounds. | Value. |
|---|---|---|
| India rubber | 8,420,733 | $5,110,771 |
| Manufactures of india rubber | ..... | 295 |
| Gutta siak | 104,955 | 12,562 |
| Totals | ..... | $5,123,628 |
| EXPORTS: | | |
| Rubber scrap | 240 | $60 |
| India rubber boots.....*pairs* | 365 | 707 |
| India rubber shoes.....*pairs* | 1,992 | 1,353 |
| Automobile tires | ..... | 110,777 |
| Other rubber tires | ..... | 5,942 |
| Belting, hose, etc. | ..... | 49,941 |
| All other manufactures of india rubber | ..... | 17,723 |
| Totals | ..... | $186,503 |

PORTS OF SEATTLE AND TACOMA, WASH.—OCTOBER, 1917.

| IMPORTS: | POUNDS. | VALUE. |
|---|---|---|
| India rubber | 8,773,844 | $5,457,896 |
| Gutta percha | 44,800 | 4,861 |
| Gutta jelutong (Pontianak) | 816,777 | 32,630 |
| Manufactures of india rubber | ..... | 3 |
| Gutta siak | 67,272 | 7,390 |
| Total | ..... | $5,502,770 |
| EXPORTS: | | |
| India rubber boots.....*pairs* | 457 | $1,898 |
| India rubber shoes.....*pairs* | 7,860 | 4,780 |
| Automobile tires | ..... | 15,732 |
| Other rubber tires | ..... | 5,109 |
| Belting, hose, etc | ..... | 14,773 |
| All other manufactures of india rubber | ..... | 10,125 |
| Total | ..... | $52,417 |

## RUBBER STATISTICS FOR THE UNITED STATES.

### IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

| | September, 1917. | |
|---|---|---|
| UNMANUFACTURED—*free:* | POUNDS. | VALUE. |
| India rubber: | | |
| From— | | |
| France | 138,392 | $61,079 |
| United Kingdom | 1,835,915 | 932,989 |
| Central America | 57,274 | 20,844 |
| Mexico | 55,764 | 29,292 |
| Brazil | 3,674,731 | 1,474,866 |
| Peru | 156,718 | 79,856 |
| Other South America | 121,352 | 54,080 |
| British East Indies | 15,729,797 | 9,365,030 |
| Dutch East Indies | 7,138,962 | 4,524,117 |
| Other countries | 1,861,075 | 1,099,829 |
| Totals | 30,769,980 | $17,641,982 |
| Balata | 193,898 | $92,318 |
| Guayule gum | 505,776 | 156,567 |
| Gutta jelutong | 1,648,065 | 81,595 |
| Gutta percha | 205,806 | 21,731 |
| Totals | 33,323,525 | $17,994,193 |
| Rubber scrap | 1,434,970 | 110,357 |
| Totals unmanufactured | 34,758,495 | $18,104,550 |
| Chicle.....*dutiable* | 136,699 | $65,860 |
| MANUFACTURED—*dutiable:* | | |
| Manufactures of india rubber and gutta percha | ..... | $43,444 |

### EXPORTS OF DOMESTIC MERCHANDISE.

| | September, 1917. | |
|---|---|---|
| MANUFACTURED— | POUNDS. | VALUE. |
| Automobile tires: | | |
| To— | | |
| France | ..... | $227 |
| Russia in Europe | ..... | 23,770 |
| United Kingdom | ..... | 86,621 |
| Canada | ..... | 151,140 |
| Mexico | ..... | 40,582 |
| Cuba | ..... | 109,484 |
| Argentina | ..... | 127,772 |
| Brazil | ..... | 60,174 |
| British India | ..... | 23,606 |
| Dutch East Indies | ..... | 12,377 |
| Australia | ..... | 22,614 |
| New Zealand | ..... | 127,717 |
| Philippine Islands | ..... | 47,198 |
| British South Africa | ..... | 141,256 |
| Other countries | ..... | 241,588 |
| Total | ..... | $1,216,126 |
| All other tires | ..... | $44,267 |
| Belting, hose and packing | ..... | 322,842 |
| Rubber boots.....*pairs* | 161,750 | 476,622 |
| Rubber shoes.....*pairs* | 129,177 | 81,357 |
| Druggists' sundries | ..... | 79,969 |
| Scrap and old rubber | 17,162 | 1,689 |
| Reclaimed rubber | 173,995 | 34,576 |
| Other rubber manufactures | ..... | 566,852 |
| Total, manufactured | ..... | $2,824,300 |
| Fountain pens.....*number* | 28,947 | $20,638 |

### EXPORTS OF FOREIGN MERCHANDISE.

| | September, 1917. | |
|---|---|---|
| UNMANUFACTURED— | POUNDS. | VALUE. |
| Balata | 64,611 | $42,456 |
| Gutta jelutong | ..... | ..... |
| Gutta percha | ..... | ..... |
| India rubber | 528,090 | 277,650 |
| Rubber scrap and refuse | ..... | ..... |
| Totals, unmanufactured | 592,701 | $320,106 |
| MANUFACTURED— | | |
| Gutta percha | ..... | $240 |
| India rubber | ..... | 760 |
| Total, manufactured | ..... | $1,000 |

### EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES.

| | September, 1917. | |
|---|---|---|
| MANUFACTURED— | POUNDS. | VALUE. |
| To— | | |
| Alaska: | | |
| Belting, hose and packing | ..... | $13,706 |
| Boots and shoes....*pairs* | 9,967 | 27,344 |
| Other rubber goods | ..... | 6,382 |
| Total | ..... | $47,432 |
| To— | | |
| Hawaii: | | |
| Belting, hose and packing | ..... | $6,022 |
| Automobile tires | ..... | 121,192 |
| Other tires | ..... | 14,504 |
| Other rubber goods | ..... | 20,046 |
| Total | ..... | $161,764 |
| To— | | |
| Philippine Islands: | | |
| Belting, hose and packing | ..... | $4,443 |
| Boots and shoes | 38,924 | 20,088 |
| Tires | ..... | 57,532 |
| Other rubber goods | ..... | 14,515 |
| Total | ..... | $96,578 |
| To— | | |
| Porto Rico: | | |
| Belting, hose and packing | ..... | $3,961 |
| Automobile tires | ..... | 117,475 |
| Other tires | ..... | 1,065 |
| Other rubber goods | ..... | 9,142 |
| Total | ..... | $131,643 |

## RUBBER STATISTICS FOR THE DOMINION OF CANADA.

The import and export figures by countries usually published in this table are withheld by the Canadian Government.

### IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

| | September, 1917. | |
|---|---|---|
| UNMANUFACTURED—*free:* | Pounds. | Value. |
| Rubber and gutta percha, crude caoutchouc or india rubber | 1,505,209 | $940,638 |
| Rubber, recovered | 174,742 | 31,417 |
| Hard rubber, in sheets and rods | 2,018 | 1,670 |
| Rubber substitute | 33,323 | 4,505 |
| Rubber, powdered, and rubber or gutta percha waste | 33,789 | 2,765 |
| Rubber thread, not covered | 779 | 1,162 |
| Chicle | 600,629 | 246,264 |
| MANUFACTURED—*dutiable:* | General Tariff. Value. | Preferential Tariff. Value. |
| Boots and shoes | $47,879 | $1,530 |
| Belting | 9,945 | ..... |
| Waterproof clothing | 14,497 | 18,235 |
| Hose, lined with rubber | 15,041 | 41 |
| Mats and matting | 113 | ..... |
| Packing | 7,412 | ..... |
| Tires of rubber for all vehicles | 164,380 | 759 |
| Rubber cement and all manufactures of india rubber and gutta percha—N. O. P. | 61,271 | 7,736 |
| Hard rubber, unfinished in tubes for fountain pens | 67 | ..... |
| Webbing over one inch wide | 12,883 | 332 |

### EXPORTS OF DOMESTIC AND FOREIGN MERCHANDISE.

| | September, 1917. | |
|---|---|---|
| MANUFACTURED— | Produce of Canada. Value. | Reexports of Foreign Goods. Value. |
| Belting | $1,886 | ..... |
| Hose | 31,038 | ..... |
| Boots and shoes | 80,075 | 3,899 |
| Clothing | 2,110 | ..... |
| Tires | 101,039 | 1,720 |
| Waste | 16,015 | ..... |
| All other N. O. P. | 22,912 | 728,893 |
| Chicle, crude | 63,862 | ..... |

## UNITED KINGDOM RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

### IMPORTS.

| | October, 1917. | |
|---|---|---|
| UNMANUFACTURED— | Pounds. | £ |
| Crude rubber | 9,590,200 | 1,200,170 |
| Waste and reclaimed rubber | 156,800 | 4,552 |
| Gutta percha | 628,992 | 64,561 |
| Totals | 10,375,992 | 1,269,283 |
| MANUFACTURED— | | |
| Apparel, waterproofed | ..... | 215 |
| Boots and shoes...*doz. pairs* | 7,188 | 12,236 |
| Insulated wire | ..... | 1,538 |
| Automobile tires and tubes | ..... | 89,322 |
| Motorcycle tires and tubes | ..... | 2,527 |
| Cycle tires and tubes | ..... | 365 |
| Total | ..... | 106,203 |

### EXPORTS.

| | October, 1917. | |
|---|---|---|
| UNMANUFACTURED— | Pounds. | £ |
| Waste and reclaimed rubber | 1,180,400 | 24,603 |
| MANUFACTURED— | | |
| Apparel, waterproofed | ..... | 56,747 |
| Boots and shoes...*doz. pairs* | 9,384 | 10,536 |
| Insulated wire | ..... | 5,066 |
| Automobile tires and tubes | ..... | 120,045 |
| Motorcycle tires and tubes | ..... | 4,751 |
| Cycle tires and tubes | ..... | 26,688 |
| Tires not specified | ..... | 11,537 |
| Manufactures not specified | ..... | 141,380 |
| Total | ..... | 376,750 |

### EXPORTS—FOREIGN AND COLONIAL.

| | October, 1917. | |
|---|---|---|
| UNMANUFACTURED— | Pounds. | £ |
| Crude rubber | 8,286,000 | 1,055,030 |
| Waste and reclaimed rubber | 22,200 | 676 |
| Gutta percha | 46,368 | 5,033 |
| Totals | 8,354,568 | 1,060,739 |
| MANUFACTURED— | | |
| Apparel, waterproofed | ..... | 16 |
| Boots and shoes...*doz. pairs* | 61 | 313 |
| Insulated wire | ..... | 5,264 |
| Automobile tires and tubes | ..... | 13,773 |
| Motorcycle tires and tubes | ..... | 43 |
| Tires not specified | ..... | 86 |
| Total | ..... | 19,495 |

## LONDON AND LIVERPOOL RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

### IMPORTS.

| | October, 1917. | |
|---|---|---|
| UNMANUFACTURED— | POUNDS. | £. |
| Crude rubber: | | |
| At— | | |
| London | 4,187,400 | 526,621 |
| Liverpool | 4,885,500 | 602,306 |
| Totals | 9,072,900 | 1,128,927 |
| Waste and reclaimed rubber: | | |
| At— | | |
| London | 25,700 | 669 |
| Liverpool | 112,200 | 3,501 |
| Totals | 137,900 | 4,170 |

### EXPORTS.

| | | |
|---|---|---|
| Waste and reclaimed rubber: | | |
| From— | | |
| London | 401,600 | 8,487 |
| Liverpool | 504,500 | 11,692 |
| Totals | 906,100 | 20,179 |

### REEXPORTS.

| | | |
|---|---|---|
| Crude rubber: | | |
| From— | | |
| London | 3,308,300 | 414,198 |
| Liverpool | 3,729,900 | 509,008 |
| Totals | 7,038,200 | 923,206 |
| Waste and reclaimed rubber: | | |
| From— | | |
| Liverpool | 22,200 | 676 |

## RUBBER STATISTICS FOR ITALY.

### IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

| | Seven Months Ending July, 1917. | |
|---|---|---|
| UNMANUFACTURED— | POUNDS. | LIRE. |
| India rubber and gutta percha —raw and reclaimed: | | |
| From— | | |
| Great Britain | 1,591,700 | ..... |
| Straits Settlements | 358,600 | ..... |
| French African colony | 205,920 | ..... |
| Belgian Congo | 234,300 | ..... |
| Brazil | 3,446,740 | ..... |
| Other countries | 1,598,740 | ..... |
| Totals | 7,436,000 | 30,420,000 |
| Rubber scrap | 1,335,400 | 607,000 |
| MANUFACTURED— | | |
| India rubber and gutta percha —threads: | | |
| From— | | |
| Great Britain | 16,940 | ..... |
| United States | 36,300 | ..... |
| Other countries | 1,760 | ..... |
| Totals | 55,000 | 500,000 |
| India rubber and gutta percha —sheets: | | |
| Cut sheets | 1,100 | 8,750 |
| Elastic fabric | 220 | 500 |
| Hard rubber | 14,080 | 55,680 |
| India rubber and gutta percha —tubes: | | |
| From cut sheets | 220 | 1,850 |
| Elastic fabric | 10,120 | 32,200 |
| Other forms | 1,320 | 4,800 |
| Belting | 53,460 | 194,400 |
| Rubber coated fabrics..*pieces* | 51,920 | 241,900 |
| Other fabrics: | | |
| From— | | |
| Great Britain | 8,140 | ..... |
| Other countries | 25,080 | ..... |
| Totals | 33,220 | 196,300 |
| Boots and shoes—*pairs:* | | |
| From— | | |
| France | 6,035 | ..... |
| United States | 12,078 | ..... |
| Other countries | 167 | ..... |
| Totals | 18,280 | 118,820 |
| Elastic webbing: | | |
| From— | | |
| France | 27,500 | ..... |
| Great Britain | 8,800 | ..... |
| Other countries | 3,960 | ..... |
| Totals | 40,260 | 311,100 |

| | Seven Months Ending July, 1917. | |
|---|---|---|
| MANUFACTURED— | POUNDS. | LIRE. |
| Clothing and articles for travel | 1,540 | 16,800 |
| Articles not specified: | | |
| From cut sheets | 9,460 | 94,600 |
| Fabrics: | | |
| From— | | |
| France | 53,020 | ..... |
| Great Britain | 144,100 | ..... |
| Other countries | 11,000 | ..... |
| Totals | 208,120 | 898,700 |
| Tires and tubes: | | |
| From— | | |
| France | 522,940 | ..... |
| Great Britain | 292,820 | ..... |
| Russia | 19,800 | ..... |
| Totals | 835,560 | 5,924,880 |
| Other rubber manufactures: | | |
| From— | | |
| France | 110,660 | ..... |
| Great Britain | 207,900 | ..... |
| United States | 234,520 | ..... |
| Other countries | 880 | ..... |
| Totals | 553,960 | 2,014,400 |
| Total Imports | ..... | 41,642,680 |

### EXPORTS OF CRUDE AND MANUFACTURED RUBBER.

| | Seven Months Ending July, 1917. | |
|---|---|---|
| UNMANUFACTURED— | POUNDS. | LIRE. |
| India rubber and gutta percha —raw and reclaimed: | | |
| To— | | |
| Spain | 72,600 | ..... |
| United States | 433,840 | ..... |
| Totals manufactured | 506,440 | 690,600 |
| India rubber and gutta percha —threads: | | |
| To— | | |
| France | 13,420 | ..... |
| Great Britain | 7,040 | ..... |
| Spain | 5,940 | ..... |
| Switzerland | 3,520 | ..... |
| Argentina | 3,520 | ..... |
| Other countries | 1,540 | ..... |
| Totals | 34,980 | 302,100 |
| India rubber and gutta percha —sheets: | | |
| Cut sheets | 1,100 | 8,500 |
| Elastic fabrics | 3,080 | 8,400 |
| Insulated wire | 220 | 350 |
| Hard rubber | 14,080 | 54,400 |

| | Seven Months Ending July, 1917. | |
|---|---|---|
| MANUFACTURED— | POUNDS. | LIRE. |
| India rubber and gutta percha —tubes: | | |
| From cut sheets | 220 | 1,900 |
| Elastic fabrics | 28,600 | 84,500 |
| Other forms | 46,640 | 159,000 |
| Belting | 2,420 | 7,920 |
| Rubber coated fabrics..*pieces* | 29,920 | 136,000 |
| Elastic webbing: | | |
| To— | | |
| France | 1,760 | ..... |
| Greece | 6,380 | ..... |
| Spain | 10,780 | ..... |
| Switzerland | 60,720 | ..... |
| Egypt | 10,560 | ..... |
| Argentina | 40,700 | ..... |
| Brazil | 88,220 | ..... |
| Chile | 9,680 | ..... |
| Cuba | 9,240 | ..... |
| Other countries | 21,560 | ..... |
| Totals | 259,600 | 1,868,000 |
| Clothing and articles for travel | 5,720 | 59,800 |
| Articles not specified: | | |
| To— | | |
| Great Britain | 660 | ..... |
| Argentina | 3,960 | ..... |
| Uruguay | 1,760 | ..... |
| Other countries | 220 | ..... |
| Totals | 6,600 | 60,000 |
| Elastic fabric | 19,580 | 80,100 |
| Tires and tubes: | | |
| To— | | |
| France | 485,320 | ..... |
| Great Britain | 1,450,900 | ..... |
| Switzerland | 1,540 | ..... |
| India and Ceylon | 322,520 | ..... |
| Australia | 440 | ..... |
| Argentina | 192,280 | ..... |
| Brazil | 239,580 | ..... |
| Other countries | 589,380 | ..... |
| Totals | 3,281,960 | 15,440,130 |
| Other rubber manufactures: | | |
| To— | | |
| France | 36,300 | ..... |
| Great Britain | 36,520 | ..... |
| Spain | 2,420 | ..... |
| Switzerland | 25,520 | ..... |
| Egypt | 2,420 | ..... |
| Argentina | 72,380 | ..... |
| Brazil | 29,700 | ..... |
| Uruguay | 13,420 | ..... |
| Other countries | 24,200 | ..... |
| Totals | 242,880 | 993,600 |
| Total Exports | ..... | 19,975,300 |

The nominal value of a lira is $0.193.

## EXPORTS OF INDIA RUBBER AND CAUCHO FROM PARA, MANAOS, AND IQUITOS DURING OCTOBER, 1917.

| | NEW YORK. | | | | | EUROPE. | | | | | Grand Totals. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EXPORTERS. | Fine. | Medium. | Coarse. | Caucho. | Totals. | Fine. | Medium. | Coarse. | Caucho. | Totals. | |
| Stowell & Co.....*kilos* | 70,105 | 4,335 | 26,740 | 13,835 | 115,015 | 147,581 | 6,494 | 16,139 | ..... | 170,214 | 285,229 |
| J. Marques | 44,882 | 10,060 | 39,880 | 17,237 | 112,059 | 56,167 | 283 | 276 | 218 | 56,944 | 169,003 |
| General Rubber Co. | 41,682 | 3,183 | 43,653 | 32,877 | 121,395 | 23,885 | 705 | 815 | 430 | 25,835 | 147,230 |
| Pires Teixeira & Co. | 49,269 | 3,026 | 23,714 | 16,277 | 92,286 | 30,118 | 869 | 580 | ..... | 31,567 | 123,853 |
| Chamié & Co. | 33,490 | ..... | 51,360 | ..... | 84,850 | 30,940 | ..... | ..... | ..... | 30,940 | 115,790 |
| G. Fradelizi & Co. | ..... | ..... | 7,044 | 6,758 | 13,802 | 38,646 | 2,050 | 1,133 | 10,200 | 52,029 | 65,831 |
| Suarez, Hermanos & Co., Limited | ..... | ..... | ..... | ..... | ..... | 38,537 | ..... | ..... | ..... | 38,537 | 38,537 |
| Bitar Irmãos | 1,325 | 1,087 | 3,091 | 6,000 | 11,503 | 1,600 | ..... | ..... | 13,500 | 15,100 | 26,603 |
| Seligmann & Co. | 8,183 | ..... | ..... | 4,043 | 12,226 | ..... | ..... | ..... | ..... | ..... | 12,226 |
| Adelbert H. Alden, Limited | 7,480 | 170 | 660 | ..... | 8,310 | ..... | ..... | ..... | ..... | ..... | 8,310 |
| Sundries | 37,822 | 840 | 14,242 | 19,403 | 72,307 | ..... | ..... | ..... | ..... | ..... | 72,307 |
| Totals | 294,238 | 22,701 | 210,384 | 116,430 | 643,753 | 367,474 | 10,401 | 18,943 | 24,348 | 421,166 | 1,064,919 |
| From Manãos | 197,031 | 28,714 | 138,260 | 194,691 | 558,696 | 460,540 | 37,977 | 6,420 | 313 | 505,250 | 1,063,946 |
| From Iquitos | 30,947 | 3,572 | 18,992 | 25,062 | 78,573 | 64,359 | 3,196 | 10,030 | 49,645 | 127,230 | 205,803 |
| Totals | 522,216 | 54,987 | 367,636 | 336,183 | 1,281,022 | 892,373 | 51,574 | 35,393 | 74,306 | 1,053,646 | 2,334,668 |

*(Compiled by Stowell & Co.)*

## EXPORTS OF INDIA RUBBER FROM MANAOS DURING OCTOBER, 1917.

| | NEW YORK. | | | | | EUROPE. | | | | | Grand Totals. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EXPORTERS. | Fine. | Medium. | Coarse. | Caucho. | Totals. | Fine. | Medium. | Coarse. | Caucho. | Totals. | |
| Stowell & Co.....*kilos* | 11,634 | 137 | 7,100 | 6,467 | 25,338 | 141,550 | 7,520 | 1,350 | ..... | 150,420 | 175,758 |
| General Rubber Co. of Brazil | 25,022 | 8,566 | 18,709 | 40,703 | 93,000 | 173,129 | 13,051 | 1,807 | 13 | 188,000 | 281,000 |
| J. A. Mendes & Co. | 2,565 | 4,035 | 18,903 | 57,184 | 82,687 | 111,096 | 18,210 | 3,420 | ..... | 132,726 | 215,413 |
| Tancredo, Porto & Co. | 3,374 | 12,821 | 28,567 | 10,546 | 55,308 | 83,025 | 12,882 | 493 | ..... | 96,400 | 157,708 |
| Adelbert H. Alden, Limited | ..... | ..... | 10,010 | ..... | 10,010 | 100,381 | 18,020 | 31 | 160 | 118,592 | 128,602 |
| J. G. Araujo | ..... | ..... | ..... | ..... | ..... | 42,411 | 4,947 | 2,886 | 300 | 50,544 | 50,544 |
| B. Levy & Co. | ..... | ..... | ..... | ..... | ..... | 4,064 | 347 | 153 | ..... | 4,564 | 4,564 |
| J. L. Traqueia | 320 | 160 | 360 | 150 | 990 | ..... | ..... | ..... | ..... | ..... | 990 |
| Totals | 42,915 | 25,719 | 83,649 | 115,050 | 267,333 | 655,656 | 74,977 | 10,140 | 473 | 741,246 | 1,008,579 |
| In transit, Iquitos | 30,947 | 20,583 | 18,992 | 8,051 | 78,573 | 64,359 | 22,161 | 10,030 | 30,680 | 127,230 | 205,803 |
| Totals | 42,915 | 25,719 | 83,649 | 115,050 | 345,906 | 720,015 | 97,138 | 20,170 | 31,153 | 868,476 | 1,214,382 |

*(Compiled by Stowell & Co.)*

## THE MARKET FOR RUBBER SCRAP.

*Copyright*, 1918.

NEW YORK.

THERE has been very little interest shown in the rubber scrap market during the past month, and practically all grades have been dull and neglected. The inactivity that has characterized the market for some time has not yet reached the turning point thereby discrediting the belief that consumer's stocks are extremely low. There has been, however, some movement of small stocks at moderate concessions, but sellers have not shown any desire to release large lots at these prices. This dullness is to be expected at this time of the year when the mills usually slow down for the holiday season and materials are kept as low as possible on account of the yearly stock-taking.

Considering the amount of actual business transacted during the past month, prices have been remarkably steady, although some reductions will be noticed in comparing present values with those published a month ago. During the closing week of the month general conditions were reported to be improving and a brighter outlook was prevailing.

BOOTS AND SHOES. The consuming trade has bought sparingly of this material, and dealers have done a little trading among themselves. The market has been easy and prices have declined about a quarter of a cent since our last report.

TIRES. These have exhibited very little activity and price declines were noted in standard white and mixed auto tires. White G. and G. tires are now quoted at the same prices as standard white tires.

INNER TUBES. Nothing has occurred to disturb the dormant condition of this material and prices remain unchanged.

MECHANICALS. The market has been dull for all grades of this material and both garden and large hose show a decline of one-quarter of a cent since last month.

STATISTICS. The London and Liverpool imports of waste and reclaimed rubber for October were 137,900 pounds, value £4,170, compared with 13,200 pounds, value £701, for September. Exports of waste and reclaimed rubber for October were 905,100 pounds, value £20,179, compared with 1,090,700 pounds, value £20,640, for September.

### NEW YORK QUOTATIONS FOR CARLOAD LOTS DELIVERED.

DECEMBER 24, 1917.
Prices subject to change without notice.

| | PER POUND. |
|---|---|
| Boots and shoes | $0.09 @$0.09⅛ |
| Trimmed arctics | .07¼ @ |
| Untrimmed arctics | .06¼ @ |
| White tires, Goodrich and Goodyear | .05½ @ |
| Auto tires, standard white | .05½ @ |
| standard mixed | .05⅛ @ |
| stripped, unguaranteed | .04½ @ |
| Auto peelings, No. 1 | .09½ @ .08 |
| No. 2 | .08 @ |
| Inner tubes, No. 1, old packing | .22½ @ |
| new packing | .25¼ @ |
| No. 2 | .11½ @ .12 |
| red | .11½ @ .12 |
| Irony tires | .01½ @ .02 |
| Bicycle tires | .04½ @ .04¾ |
| Solid tires | .05½ @ .05¾ |
| Clean truck tires | .06 @ .06¼ |
| White scrap, No. 1 | .13½ @ .14 |
| No. 2 | .09½ @ .10 |
| Red scrap, No. 1 | .09 @ .09½ |
| No. 2 | .07 @ .07½ |
| Mixed black scrap, No. 1 | .05 @ .05½ |
| No. 2 | .04 @ .04½ |
| Rubber car springs | .05 @ .05¼ |
| Horse shoe pads | .04½ @ .04¾ |
| Matting and packings | .01¾ @ .02 |
| Garden hose | .02 @ .02¼ |
| Air brake hose | .06 @ |
| Cotton fire hose | .02¾ @ .03 |
| Large hose | .02 @ .02¼ |
| Hard rubber scrap, No. 1, bright fracture | .26 @ .27 |
| Battery jars (black compound) | .03 @ |
| Insulated wire stripping, free from fiber | .04 @ |
| Rubber heels | .04 @ .04¼ |

## THE MARKET FOR COTTON AND OTHER FABRICS.

*Copyright*, 1918.

NEW YORK.

THE principal feature in the American cotton market last month was the publication of the Government's annual crop estimate of 10,949,000 bales, compared with 11,449,930 bales for last year. These figures proved to be very close to the average estimates; however, a sharp advance in prices followed, marking up new high records for the season. The character of the buying interests indicated that the cotton purchased was destined for consumption and due to the unusual trade demand. On December 27, middling spot cotton was 31.75 cents, January futures 30.32 cents and March futures 29.83 cents.

EGYPTIAN COTTON. The terms of the embargo on raw cotton, which has been in effect since 1915, prohibited exportation to all ports in Europe and on the Mediterranean and Black seas, other than those of the United Kingdom, the allied countries and Spain. Export prohibition is now made general except under license, according to a recent ruling of the Egyptian Government. This prohibits export of cotton from Egypt except under license from the general officer in control of the cotton export

TIRE
FABRICS

JENCKES
SPINNING
COMPANY

PAWTUCKET
RHODE ISLAND

regulation committee, in Egypt, which will allocate quantities to be exported to each country from September 1 last. Licenses will be granted to each exporter on the basis of exports in recent years.

SEA ISLAND COTTON. The "Textile World Journal" says: "Confirmation of early reports that the new Sea Island cotton crop is unusually deficient in character and is excessively wasty, is particularly unfortunate in view of the fact that considerable quantities of such cotton will be required for government uses for which maximum fiber strength is most important. For such purposes length of fiber is far less important than maximum spirality, fineness and freedom from unripe and immature fibers. The present crop of Sea Island cotton is deficient in each of these particulars. It is quite certain that some of the best Mississippi and Arkansas staples of shorter length, but of greater fineness and spirality than the Sea Island, will be found stronger than the latter, and superior for airplane cloth and other fabrics requiring unusual strength. Under the circumstances, however, it will be necessary for the Government to cooperate with spinners in increasing imports of the best Egyptian cotton."

Estimates of the new Sea Island crop are 90,000 bales, which is only an average crop and much smaller than that of last year.

MECHANICAL DUCK. The civilian demand has continued to be active during the past month, but the mills have nothing to offer, being fully occupied with government orders. Hose and belting duck are nominally quoted 61 to 65 cents, and 60 to 65 cents, respectively.

RAINCOAT FABRICS. No business other than Government work has been done in the raincoat trade. The new contracts for slickers to be awarded in January have prevented manufacturers from buying fabrics for civilian business.

SHEETINGS AND OSNABURGS. These continue to be very scarce and prices have all been marked up since last month.

TIRE FABRICS. The market for all grades of tire fabrics has been quiet and very little civilian business was done in December. The Government, however, has bought heavily, the effect of which will doubtless be felt by the civilian trade in the spring.

### NEW YORK QUOTATIONS.

DECEMBER 27, 1917.

Prices subject to change without notice.

| | | | |
|---|---|---|---|
| **Airplane and Balloon Fabrics:** | | | |
| Wamsutta, S. A. I. L. No. 1, 40-inch | *yard* | *$0.52½ | @ |
| No. 4, 38½-inch | | *.50 | @ |
| for gas masks | | *.42½ | @ |
| **Wool Stockinettes—52-inch:** | | | |
| A—14-ounce | *yard* | *1.75 | @ |
| B—14-ounce | | *2.25 | @ |
| C—14-ounce | | *2.50 | @ |
| **Cotton Stockinettes—52-inch:** | | | |
| D—14-ounce | *yard* | *.85 | @ .90 |
| E—11½-ounce | | *.60 | @ .65 |
| F—14-ounce | | *.85 | @ .90 |
| G— 8-ounce | | *.75 | @ .80 |
| H—11-ounce | | *.70 | @ .85 |
| I— 9-ounce | | *.60 | @ .65 |
| Colors—white, black, blue, brown. | | | |
| Knitaback Stockinette | *pound* | *1.60 | @ 1.65 |
| **Tire Fabrics:** | | | |
| 17¼-ounce Sea Island, combed | *square yard* | 1.65 | @ |
| 17¼-ounce Egyptian, combed | | 1.25 | @ |
| 17¼-ounce Egyptian, carded | | 1.20 | @ |
| 17¼-ounce Peelers, combed | | 1.05 | @ 1.10 |
| 17¼-ounce Peelers, carded | | .82 | @ .86 |
| **Sheetings:** | | | |
| 40-inch 2.35-yard | *yard* | .25 | @ |
| 40-inch 2.50-yard | | .23½ | @ |
| 40-inch 2.70-yard | | .22 | @ |
| 40-inch 2.85-yard | | .20½ | @ |
| 40-inch 3.15-yard | | .19½ | @ |
| **Osnaburgs:** | | | |
| 40-inch 2.35-yard | *yard* | .23½ | @ |
| 40-inch 2.48-yard | | .21½ | @ |
| 37½-inch 2.42-yard | | .22 | @ |
| **Mechanical Ducks:** | | | |
| Hose | *pound* | *.61 | @ .65 |
| Belting | | *.60 | @ .65 |
| **Carriage Cloth Duck:** | | | |
| 38-inch 2.00-yard enameling duck | *yard* | *.27 | @ |
| 38-inch 1.74-yard | | *.31 | @ |
| 72-inch 16.66-ounce | | *.59 | @ |
| 72-inch 17-21-ounce | | *.64 | @ |
| **Drills:** | | | |
| 38-inch 2.00-yard | *yard* | *.27 | @ |
| 40-inch 2.47-yard | | *.22½ | @ |
| 52-inch 1.90-yard | | *.29 | @ |
| 52-inch 1.95-yard | | *.28½ | @ |
| 60-inch 1.52-yard | | *.37 | @ |
| **Imported Woolen Fabrics Specially Prepared for Rubberizing—Plain and Fancies:** | | | |
| 63-inch, 3¼ to 7½ ounces | *yard* | 75 | @ 2.00 |
| 36-inch, 2¾ to 5 ounces | | 50 | @ 1.20 |
| **Imported Plaid Lining (Union and Cotton):** | | | |
| 63-inch, 2 to 4 ounces | *yard* | 55 | @ 1.15 |
| 36-inch, 2 to 4 ounces | | 42½ | @ .85 |
| **Domestic Worsted Fabrics:** | | | |
| 36-inch, 4½ to 8 ounces | *yard* | .45 | @ 1.10 |
| **Domestic Woven Plain Linings (Cotton):** | | | |
| 36-inch, 3¾ to 5 ounces | *yard* | .13½ | @ .27½ |
| **Raincoat Cloth (Cotton):** | | | |
| Bombazine 64 x 60 water repellent | *yard* | .16½ | @ |
| 60 x 48 not water repellent | | .13¾ | @ |
| Twills 64 x 72 | | .17¾ | @ .18 |
| 64 x 102 | | .23 | @ .25 |
| Tweed | | .31 | @ .35 |
| Tweed, printed | | .11 | @ .16 |
| Plaids 60 x 48 | | .14 | @ |
| 56 x 44 | | .13½ | @ |
| Surface prints 60 x 48 | | .15 | @ |
| 64 x 60 | | .16¾ | @ |
| Repp | | .20 | @ .24 |
| **Burlaps:** | | | |
| 32— 7½-ounce | *100 yards* | *9.30 | @ |
| 40— 7½-ounce | | 15.85 | @ |
| 40— 8-ounce | | 15.95 | @ |
| 40—10-ounce | | 16.95 | @ |
| 40—10½-ounce | | 19.25 | @ |
| 45— 7½-ounce | | *18.60 | @ |
| 45— 8-ounce | | *14.00 | @ |
| 45— 9½-ounce | | *15.15 | @ 15.25 |
| 48—10-ounce | | *26.00 | @ |

*Nominal.

## THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS.

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NEW YORK.

THE base metal market for the most part has been extremely dull throughout the past month, with values that show but little change from last month's figures. The announcement of December 18, that the War Industries Board does not consider the regulation of price and distribution of lead necessary or advisable at this time was a surprise to the trade, as a contrary ruling was expected. This is evidence that production is sufficient for all requirements, both national and civilian, and, therefore, the market, for the time at least, will be self-governed.

The demand for rubber chemicals was fairly steady last month and in accordance with the volume of business usually expected during this holiday and inventory-taking period. Prices have not undergone any marked changes.

ACCELERATORS. The list of accelerators continues to grow, Tensilite and Velocite being the newest additions.

BENZOL. A good volume of business has featured this solvent, doubtless due to the high price of and difficulties in obtaining naphtha. Pure white benzol was quoted 45 cents per gallon for immediate shipments.

CARBON TETRACHLORIDE. A fairly good call for this solvent has been noted, and production is apparently ample for all present requirements. Quotations vary from 15½ cents to 17 cents a pound.

CAUSTIC SODA. Restricted export has produced weakness in this market and prices have declined, 76 to 78 per cent in second hands being quoted 6.7 to 7 cents per pound for immediate shipment.

DRY COLORS. The volume of business has been small and of a routine character, the consumers being apparently satisfied with small-lot buying for immediate use. Raw materials are scarce and producing costs high, which accounts for the firm prevailing prices for practically all rubber colors.

LITHOPONE. The demand has been good at contract prices covering the first quarter of this year, ranging from 6½ cents to 7 cents. The shortage of fuel and acid necessary in the manufacture of lithopone explains the firmness of the present market and indicates higher prices in the future.

ZINC OXIDE. The new contract prices for French-process zinc oxide are 14 cents for white seal, in carloads, 14¼ cents less

carloads. For green seal, 13½ cents in carloads and 13¾ cents less carloads. For red seal, 13 cents in carloads and 13¼ cents for less carloads. For American-process Horsehead, Special, carloads, 10¾ cents; less carloads, 11 cents. XX Red, carloads, 10¼ cents; less carloads, 10½ cents.

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### NEW YORK QUOTATIONS.

DECEMBER 27, 1917.

Subject to change without notice.

| | | | | |
|---|---|---|---|---|
| Accelerators, Accelerene | lb. | *2.62 | @ | |
| Excellerex | lb. | .85 | @ | |
| Hexamethylene tetramine (powdered) | lb. | 1.05 | @ | 1.15 |
| Paraphenylenediamine | lb. | 2.50 | @ | |
| Tensilite | lb. | .90 | @ | |
| Thiocarbanilide | lb. | .50 | @ | |
| Velocite | lb. | .85 | @ | |
| Acetone (drums) | lb. | .35 | @ | .36 |
| Acid, acetic, 28 per cent (bbls.) | lb. | .06 | @ | |
| glacial, 99 per cent (carboys) | lb. | .33 | @ | |
| cresylic, 97-99 per cent, straw color | gal. | 1.10 | @ | |
| 95 per cent, dark | gal. | 1.00 | @ | |
| muriatic, 20 degrees | lb. | .02 | @ | |
| nitric, 40 degrees | lb. | .07¼ | @ | |
| sulphuric, 66 degrees | lb. | .02 | @ | |
| Aldehyde ammonia (crystals) | lb. | 1.10 | @ | 1.25 |
| Aluminum flake (carloads, bbls.) | ton | 24.00 | @ | 29.00 |
| (carloads, sacks) | ton | 22.00 | @ | |
| Ammonia carbonate, powdered | lb. | .12 | @ | |
| lumps | lb. | .11½ | @ | |
| Antimony, crimson, sulphuret of (casks) | lb. | .45 | @ | .49 |
| crimson, "Magmetco" | lb. | .30 | @ | |
| crimson, "Mephisto" (casks) | lb. | .52 | @ | |
| Antimony, golden, sulphuret of | lb. | .24½ | @ | .28 |
| golden, "Magmetco" | lb. | .45 | @ | |
| golden, "Mephisto" (casks) | lb. | .28 | @ | |
| golden, sulphuret, States brand, 16-17 per ct. | lb. | *.28 | @ | |
| red sulphuret, States brand | lb. | *.25 | @ | |
| vermilion sulphuret | lb. | .55 | @ | |
| Arsenic, red sulphide | lb. | .45½ | @ | |
| Asbestine (bags) | ton | 22.00 | @ | |
| Asbestos (bags) | ton | *35.00 | @ | 50.00 |
| Barium, carbonate, precipitated | lb. | .03½ | @ | |
| Barium sulphide, precipitated | lb. | .06½ | @ | |
| Barytes, pure white | ton | 20.00 | @ | |
| off color | ton | 22.00 | @ | |
| uniform floated | ton | 28.00 | @ | |
| Basofor | ton | 80.00 | @ | |
| Benzol, pure | gal. | .45 | @ | |
| 90 per cent. | gal. | .40 | @ | |
| Beta-Naphthol, distilled | lb. | .70 | @ | .75 |
| Blanc fixe | lb. | .04 | @ | |
| Bone ash | lb. | *.06 | @ | |
| Bone black, powdered | lb. | *.08 | @ | |
| granulated | lb. | *.10 | @ | |
| Cadmium tri-sulphate (f. o. b. London) | lb. | *2.68 | @ | |
| a sulphide, yellow | lb. | 2.15 | @ | 2.20 |
| Cantella gum | lb. | .43 | @ | |
| Carbon, bisulphide (drums) | lb. | .06½ | @ | .07 |
| black (cases) | lb. | .23 | @ | |
| tetrachloride (drums) | lb. | .16½ | @ | |
| Caustic soda, 76 per cent. | lb. | .06¾ | @ | .07 |
| Chalk, precipitated, extra light | lb. | .05 | @ | .05½ |
| precipitated, heavy | lb. | .04 | @ | .04½ |
| China clay, domestic (powdered) | ton | 12.00 | @ | 20.00 |
| imported (powdered) | ton | 45.00 | @ | |
| Chrome, green | lb. | .13 | @ | |
| yellow | lb. | .24 | @ | |
| Cobalt blue | lb. | .25 | @ | .35 |
| Cotton linters, clean mill run | lb. | .06½ | @ | |
| Fossil flour | ton | 60.00 | @ | |
| Gas black (cases) | lb. | .20 | @ | .30 |
| Gilsonite | ton | 45.00 | @ | |
| Glue, high grade | lb. | .35 | @ | .50 |
| medium | lb. | .20 | @ | .35 |
| low grade | lb. | .16 | @ | .20 |
| Glycerine, C. P. (drums) | lb. | .70 | @ | |
| Graphite, flake (400 pound bbl.) | lb. | .25 | @ | |
| amorphous | lb. | .07 | @ | |
| Green oxide of chromium (casks) | lb. | .75 | @ | |
| Ground glass FF. (bbls.) | lb. | *.02¼ | @ | |
| Indian red, reduced grades | lb. | .06½ | @ | .09½ |
| pure bright | lb. | .12½ | @ | |
| Infusorial earth, powdered | ton | 60.00 | @ | |
| bolted | ton | 65.00 | @ | |
| Iron oxide, red, reduced grades | lb. | .06 | @ | |
| red, pure, bright | lb. | .11 | @ | .14 |
| brown | lb. | .02 | @ | .04 |
| Ivory, black | lb. | .16 | @ | .30 |
| Lampblack | lb. | .12 | @ | .25 |
| Lead, dry red | lb. | .10 | @ | |
| sublimed blue | lb. | .08½ | @ | |
| sublimed white | lb. | .08½ | @ | |
| white, basic carbonate | lb. | .09 | @ | |
| white, basic sulphate | lb. | .08½ | @ | .09 |
| black hyposulphite (Black Hypo) | lb. | .50 | @ | |
| Lime, flour | ton | 25.00 | @ | |
| Liquid rubber | lb. | .12½ | @ | |
| Litharge, domestic | lb. | .09½ | @ | .09¾ |
| English | lb. | .11 | @ | .11½ |
| sublimed | lb. | *.09¼ | @ | |
| Lithopone, imported | lb. | .12 | @ | |
| domestic | lb. | .06½ | @ | .07 |
| Rubber makers' white | lb. | .06½ | @ | .07 |
| Ponolith | lb. | .06½ | @ | .07 |
| Magnesium, carbonate | lb. | .11 | @ | .12 |
| calcined, heavy | lb. | .11 | @ | .12 |
| light | lb. | .70 | @ | |
| Magnesite, calcined, powdered | ton | 40.00 | @ | 65.00 |
| Mica, powdered | lb. | .03½ | @ | .05 |
| Mineral rubber, M. R. X. | ton | 100.00 | @ | |
| Genasco (carloads) | ton | 50.00 | @ | |
| Pioneer | ton | 50.00 | @ | |
| Richmond Brand | ton | 70.00 | @ | |
| No. 64 Brand | ton | 50.00 | @ | |
| Refined Elaterite | lb. | .08 | @ | |
| Raven M. R. | lb. | .03½ | @ | |
| Naphtha, motor gasoline (steel bbls.) | gal. | .24 | @ | |
| 73@76 degrees (steel bbls.) | gal. | .33 | @ | |
| 68@70 degrees (steel bbls.) | gal. | .28 | @ | |
| V. M. & P. (steel bbls.) | gal. | .23 | @ | |
| Ochre, brown domestic | lb. | .02 | @ | .03 |
| imported | lb. | .04 | @ | .05 |
| yellow | lb. | .04 | @ | |
| Oil, aniline | lb. | .26 | @ | .30 |
| corn, refined Argo (carloads) | cwt. | *20.11 | @ | |
| linseed, raw (carloads) | gal. | 1.22 | @ | 1.27 |
| palm | lb. | .23 | @ | .25 |
| paraffin | gal. | *.27 | @ | .28 |
| pine, steam distilled | gal. | *.47 | @ | |
| pine tar | gal. | *.28 | @ | |
| rapeseed, blown | gal. | 1.70 | @ | 1.75 |
| rosin | gal. | .35 | @ | .65 |
| tar (cases) | gal. | .27 | @ | .34 |
| soluble aniline, yellow, orange | lb. | 2.50 | @ | |
| black | lb. | 1.25 | @ | |
| red | lb. | 2.50 | @ | 3.00 |
| Orange mineral, domestic | lb. | .13 | @ | |
| Oxymony | lb. | .15 | @ | |
| Paragol soft and medium (carloads) | cwt. | *15.56 | @ | |
| hard | cwt. | *15.06 | @ | |
| Petrolatum | lb. | .04¾ | @ | .05 |
| Petroleum grease | lb. | .04½ | @ | .04¾ |
| Pine tar retort | bbl. | 14.00 | @ | |
| kiln | bbl. | 13.00 | @ | |
| Pitch, Burgundy | lb. | .04½ | @ | .05 |
| coal tar | lb. | *.01 | @ | |
| pine tar | lb. | *.02¼ | @ | |
| Plaster of paris | bbl. | 2.00 | @ | 3.00 |
| Prussian blue | lb. | .72 | @ | |
| Pumice stone, powdered (bbls.) | lb. | .03½ | @ | |
| Reclaimed rubber, Standard shoe reclaim | lb. | .15 | @ | |
| Standard tire reclaim | lb. | .17½ | @ | |
| Resin, Pontianak, refined | lb. | | None | |
| granulated | lb. | | None | |
| fused | lb. | | None | |
| Rosin, K | bbl. | 7.35 | @ | |
| Rotten stone, powdered | lb. | .03 | @ | .03½ |
| Rubber black | lb. | .06 | @ | |
| Rubber substitute, black | lb. | .11 | @ | .17 |
| white | lb. | .13 | @ | .24 |
| brown | lb. | .18 | @ | .24 |
| brown factice | lb. | .09 | @ | .23 |
| white factice | lb. | .13 | @ | .25 |
| Rubhide | lb. | *.38 | @ | |
| Shellac, fine orange | lb. | .67 | @ | .70 |
| Sienna, brown | lb. | .04 | @ | .10 |
| Silex (silica) | ton | 60.00 | @ | |
| Soapstone, powdered | ton | 18.00 | @ | |
| Starch, powdered corn (carload, bbls.) | cwt. | 6.48 | @ | |
| (carload, bags) | cwt. | 6.38 | @ | |

| | | | |
|---|---|---|---|
| Sulphur chloride (drums) | lb. | .06½ @ | .07½ |
| Sulphur, flour, velvet brand (carloads) | cwt. | 3.95 @ | |
| pure soft | cwt. | 3.95 @ | |
| Talc, American | ton | 18.00 @ | |
| French | ton | 25.00 @ | |
| Tar, coal | bbl. | *4.25 @ | |
| Toluol, pure | gal. | 1.50 @ | 2.00 |
| Tripoli earth, powdered | ton | 60.00 @ | |
| bolted | ton | 65.00 @ | |
| Turpentine, spirits | gal. | .47 @ | .47½ |
| wood | gal. | .44 @ | .45 |
| Tyre-lith | ton | 90.00 @ | |
| Umber, brown | lb. | .04 @ | .05 |
| Ultramarine blue | lb. | .18 @ | .50 |
| Vermilion, English pale, medium, dark | lb. | 1.75 @ | 1.85 |
| Wax, beeswax, white | lb. | .60 @ | .62 |
| ceresin, white | lb. | .15 @ | .18 |
| carnauba | lb. | .48 @ | .67 |
| ozokerite, black | lb. | .58 @ | .63 |
| green | lb. | .78 @ | .83 |
| montan | lb. | .32 @ | .35 |
| paraffin, crude 118/120 m. p. (cases) | lb. | .10½ @ | |
| 124/126 m. p. (cases) | lb. | .09½ @ | |
| refined 128/130 m. p. (cases) | lb. | .12½ @ | |
| 135/137 m. p. (cases) | lb. | .13½ @ | |
| Whiting, Alba | cwt. | .90 @ | 1.00 |
| commercial | cwt. | 1.25 @ | 1.35 |
| gilders | cwt. | 1.35 @ | 1.50 |
| Paris, white, American | cwt. | 1.50 @ | 1.75 |
| English cliffstone | cwt. | 1.75 @ | 2.00 |
| Wood pulp XXX. | ton | *35.00 @ | |
| Zinc oxide, American process, horsehead brand (less carload) | | | |
| "XX red" f. o. b. factory | lb. | .10½ @ | |
| "special" f. o. b. factory | lb. | .11 @ | |
| French process, red seal f. o. b. factory | lb. | .13¼ @ | |
| green seal f. o. b. factory | lb. | .13¾ @ | |
| white seal f. o. b. factory | lb. | .14¼ @ | |
| Zinc sulphide, pure | lb. | None | |

* Nominal.

### THE JONES NON-SKID PNEUMATIC TIRE.

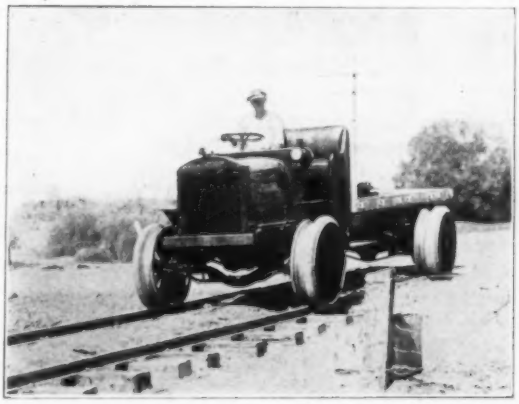
The novel feature in this tire is the beadless casing that is provided throughout its entire circumference with molded depressions to accommodate the steel bands and rings that comprise the non-skid feature of the tire. The chain comprises tread and side bands of steel, permanently connected by steel rings and links forming a flexible, continuous chain that is imbedded in the depressions in the tread and side walls of the casing. The inside circumference of the chain on both sides is provided with links by which the chain is anchored to the two steel bead rings. These rings take the place of the usual beads, and when the tire is inflated, hold it firmly in place on the rim. [Bennett, Dennison & Co., 28 East Jackson Boulevard, Chicago, Illinois.]

DECEMBER 3 WAS THE DATE SET FOR THE OPENING OF BIDS FOR providing our government with 15,000 pairs of rubber boots and 25,000 pairs of arctics for the Marine Corps. Only one bid was submitted, that of the Hood Rubber Co., of Watertown, Massachusetts. The prices were $2.80 for the boots and $2.90 for the arctics. Deliveries are to begin in March or April next, and the bidder offered to complete the deliveries by June 1. The lack of competition is said to be due to the fact that previous government contracts are taxing the capacity of the rubber shoe plants of the country.

## THE HOLT RAIL AND ROAD MOTOR TRUCK WHEEL.

THERE was a time when the railroad systems of this country were believed to be adequate to every demand that could possibly be made upon them. However true that may have been in normal times, the heavy burdens of the nation at war have exceeded the capacity of the railroads, thereby creating a serious transportation problem that demands immediate solution. Motor trucks have greatly relieved local freight congestion in many districts and these flexible units are daily demonstrating their practicability in long hauls. That they are capable of still greater usefulness as a common carrier is shown by a recent invention here illustrated.

A dozen miles east of El Centro, in the Imperial Valley of California, is the town of Holtville. The two towns are connected by the Holton Inter-Urban Railroad, which like Holtville, is named after W. F. Holt, one of the pioneers of the valley. Formerly, the freight and passenger business between the two towns made the railroad prosper, but in recent years the motor truck and automobile lines have taken a large share of the business, threatening the railroad with bankruptcy. The Holton Inter-Urban Railroad had a right of way through a fertile district where large marketable crops were cultivated. It was almost as cheap to haul by motor truck to El Centro from points near Holtville, as it was to haul to Holtville and load at that point for El Centro, where a second transfer was



necessary. It was, therefore, up to the railroad to get shipments at the ranches and business houses and deliver them to El Centro, and also to bring incoming freight from El Centro and Holtville to the rancher and business house, each way without transfer. This called for a motor truck with specially constructed wheels that would run on roads and steel rails.

The problem was solved by Mr. Holt, who invented and patented a motor-truck wheel, equipped with steel flanges on the inner side and having a solid rubber truck tire on the outer side and of a larger circumference than the metal flanged portion.

This truck obtains its load at the different mercantile establishments, then mounts the tracks at any street or road crossing and begins its journey either to Holtville or to El Centro. If freight has been billed for points midway, the truck leaves the track at any road crossing, makes the delivery to rancher or mercantile house, remounts the rails and continues to the next point.

After the truck wheels are in place on the rails, they are locked rigidly against lateral motion by a device that is operated from the driver's seat. The difficulty of crossing frogs and switches has been overcome by special devices of approved construction. The truck operates on regular schedule and attains a speed of forty miles an hour.

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CAOUTCHOUC GUTTA-PERCHA

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